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Confessions of a Psychologist

PART I

By
G. STANLEY HALL

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CONFESSIONS OF A PSYCHOLOGIST.

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CONFESSIONS OF A PSYCHOLOGIST.

PART I.

2019

By G. STANLEY HALL.

In 1880 I undertook, with a temerity which now fills me with amazement, to represent all the departments I was able in the field of psychology and pedagogy, which was the title of my chair, at the Johns Hopkins University. As there had previously been no stated work there, save only that of occasional lectures in the whole field, and special courses by Professor Geo. S. Morris, the first American scholar to attain eminence in the history of philosophy, and Charles S. Pierce, one of the most original and to me inspiring masters of those who know, I had *carte-blanche* in a free domain, and it seemed best at first to make some sacrifice of depth and thoroughness to range and extent, and to lecture on the general history of philosophy and ethics from the Greeks down to the close of German idealism, in which I had years before served my academic apprenticeship of three years of study in Europe; to amplify my former Harvard courses on contemporary philosophy; to cover the whole field of psychology, old and new, from a second three years' study of which latter in Germany I had just returned; to give a weekly course in the history of education and another in the applications of philosophy and psychology to it. In addition to this, a few years later, circumstances beyond my control, made it necessary for me to become the responsible head at the University of the Baltimore City Hospital for the Insane, at Bay View, and to appoint the head of it from among the medical attendants upon my lectures, and to report upon the work, to visit and conduct weekly clinics in the wards a part of the year. The traditions and spirit of the University then strongly inclined to the lecture system almost exclusively, and I found myself compelled to devote my entire time and energy, especially for the first few years, to as diligent a cram as perhaps any one ever undertook. It was during this period that I gradually drifted to the invention, and more often the adoption, upon suggestions from others of methods to which I have steadfastly adhered for twenty years, the description of which, in the light of their accumulated results, may be helpful to instructors younger than myself, although some, if not most of them, may be so only in the way of warning.

One of the first things I did was to purchase a number of blank books, 9 x 14 inches, and about one inch thick, labeling them respectively, pre-Socratic, Plato, Aristotle, Stoic, Patristic, Scholasticism, German idealism, English philosophy, Evolution, Pessimism, etc. Psychology was represented by one book for each of the senses and one each for the psychophysical law, association, memory, attention, will, emotions, etc., and one for myth, custom and belief, one for the psychology of religion, and two for the psychology of speech. Education was blocked off into periods, each with its volume. One book was given to the education of defectives; in morbid psychology, — mania, illusions, melancholia, epilepsy, and half a dozen more, were represented by one each, with two books for brain anatomy, one for hypnotism and allied phenomena, two for criminology, one each for child study and animal instinct. Thus in all, over 30 volumes were gradually set apart. My entire course revolved every three years, with at first six and later eight or ten lectures a week. Preparation for each course was made by diligently reading as many of the best authors as I could, and briefly digesting their content with all salient characteristic phrases, and cutting and pasting in the contents of such lecture note books and manuscript as I had accumulated in my previous teaching. Alas! for those who heard me during the first triennium (Jastrow, Dewey, Cattell, Sanford, Donaldson, Hyslop, Hodge, Patrick, Burnham, and others who have since attained an eminence and made contributions of perhaps greater value than those of any American up to that time, and from each of whom I have learned vastly more than they ever did from me), when I had to make such compromise as I was able between triangulating the vast mental spaces here so crudely blocked out, and going into details at the points I knew best beforehand or could study most *ad eundem*. These years were one long stretch of cramming and condensation, with digestion and active and thorough co-ordination left to do the best they could under the circumstances. When my pupils of that date speak pleasantly to me of this work, my own best judgment of it is that the most charitable view possible is that it was suggestive, a kind of *vox clamantis in deserto* which may have served to first point some of them to the great authors, topics and their relations in a then novel field. I never dared to hold my classes closely to a systematic quiz, because I felt the lectures were incomplete and perhaps had an instinct that a thorough revision of them would reveal their inadequacy to the class in a painful way. A very few of the courses into which it was all broken up, were repeated each year, some every two, but more every three years, as that was the regular

Ph. D. course, and some were only given at longer intervals, so that my own interests and tastes had reasonable scope. In some topics, in this absurdly vast field, where a dozen or two professors could well divide the work between them, as indeed is done in the best foreign universities, I did avowedly little but condense a few leading authors, while in others worked my way by frequent repetition to a degree of exhaustiveness. The leading idea has been that my own efforts at original contributions and those of my pupils should, if possible, be based upon some knowledge of all the best that has been said upon the subjects in the authorities and languages I could command, in order that effort be not wasted in doing over again work that had been already better done elsewhere. The source of everything was always given in the effort to generate in each pupil sufficient interest to go to the sources in at least some topic for himself. On the whole, then, the chief merit of this work of years is measured almost solely by my diligence as a reader, and by my success in compiling and condensing, and arousing interest. I could only strive for suggestiveness, exhaustiveness under such conditions was impossible.

As the courses were successively repeated, the reading of each year topic by topic was condensed and entered in the proper book, most of this work being done in preparation for each lecture in addition to freshening up the strata of preceding years. Gradually I came to arrange such books and monographs, as I could purchase, on my shelves in the order in which they were treated in the lecture books, so that sometimes after a three years interval I could look ahead at the beginning of the year to so many feet of printed matter that must be at least glanced at during the course. Gradually I came also to adding references to authorities that came more incidentally to my knowledge in the Libraries of the University and the Peabody Institute near by, and worked in new books ordered in the summer for next year's work from the library appropriation to my department, which was about \$1,000 per year at first; and when the time came I did my often wretched best to grapple with these, always with great and growing disparity between the topics I was most and those I was least interested in.

It was an important epoch in this work, when in November, 1887, I was able to start the *American Journal of Psychology*, and to assign a very large space in it to digests and reviews of select current literature in the field as was done at first. For the first few numbers I undertook to do most of this work myself, as several hundred pages in the early numbers testify. Soon, however, I had to farm this out where I could to students in my seminary and often to fellow professors elsewhere. This

I did with the request that most of every book notice should be devoted to a concise and salient presentation of the author's view, using his own most striking phrases if possible, and that criticisms be reserved to the last sentences or a paragraph or two. In this way for nearly fifteen years, hundreds of special books and monographs have been summarized and this material has played a growing rôle in the lecture books. Upon the appearance of each quarterly number of the *Journal*, as later of the *Pedagogical Seminary*, two numbers have always been destroyed by cutting out each important review and placing it in its due position in the proper book. I have also occasionally sacrificed copies of other periodicals in this way, but most book reviews persistently tend to be critical rather than expository and thus to leave the reader informed of the defects or errors but not of the positive contribution so much more important, and hence are in only a rather restricted proportion of cases really serviceable for this purpose.

At the present time some of these lecture volumes, which generally accompany me to and from the class room and have often been a subject of good humored ridicule and caricature on the part of students and even, I regret to say, colleagues, are worn, dog-eared, dirty, a single and often many leaves have been cut out and pasted into other places or books, occasionally large newspaper clippings or even pamphlets are stuck in, some have grown to nearly thrice their original dimensions and others have shrunk to half. I once succeeded in insuring them for \$4,000, fearing that my function in life would be gone if they were burned, and later I bought a safe for the choicest of them. Conscious as I am of the ridiculous side of it, the best of these represent years of drudgery, much of which would be lost if they perished. It is, therefore, with a curiously great degree of satisfaction that I occasionally reach the goal held in view from the first and do digest or sugar off the positive content of a volume, or a part of it, together with such contributions as I sometimes think I am able to make to the subject, into a few chapters for one of my forthcoming publications. The satisfaction with which I have thus a few times seen the last handful of leaves of one of these old books crackle and crisp in my fireplace, feeling that the soul of it was now sublimated and ready for the paper immortality of printer's ink, constitutes a unique sensation complex which I have never seen described, and which my psychology is not able to adequately characterize. If this process can ever be consummated for all of my favorite topics, my heart will sing its *nunc dimittis* and I shall attain a euthanasia rarely vouchsafed to mortal man. At present, in the early fifties, I am wondering whether if Emerson is right that a task is a life preserver, this hope

and ideal, which has lately grown very strong and dominant, may not work some kind of mind cure mystery that may be able to insure me a green and happy old age in its realization, although to complete the entire scheme would probably carry me far past the centenary mark and be measured by more feet of volumes all a-row on a shelf than any of the most prolific writers past or present in philosophy ever attained. To take all this vast field of knowledge for one's province in the superficial way is removed by an interval, which only the imagination can span, from writing anything worth any one's while to read, in at the very least the great majority of its departments.

I am persuaded that for a young man it is far more conducive to continuous mental development, at least in this field, to have at first a wide acreage both for breadth of view and that specialization may be gradual and natural so as to fit individual tastes and capacities. A new department in a new university with abundant means and with the ideals then prevalent there made the work an inspiration. For some years this was the only chair centering about empirical and laboratory psychology in the country, and whatever influence it had upon the remarkable development that line of work has since had in this country, I shall always ascribe to the prophetic sagacity of President Gilman, the greatest of what may be called *inside* university presidents, who organize academic work from within outward, adjusting all to the present views of science and learning, a kind of service quite distinct from that of the organizer from the outside, who mediates between the university and the public and is dominated in all he says and does by the quest of dollars and students. Despite the imperfection of my work he saw that it was in a promising new field and apologized for my shortcomings to my colleagues, who saw them and lacked his insight and foresight, and he became the patron and spiritual father, not merely of my own work and the author of my humble career, but of all the influences that the first establishment of such a chair, in a great institution which has set more and better fashions and opened more brighter possibilities in higher education than any one other since it was established, could irradiate and re-enforce.

I have also long been convinced that the *mediæval* method of lecturing is unpedagogic and ought to be obsolete. It strove to present with a systemization too ostentatious a view of a subject so complete that reading was almost unnecessary. Students recorded with great assiduity the words of the master's as dictations, who often interspersed sentences and paragraphs that must be taken down literally as distinct from the "Expectorazione" with more spontaneous impromptu illustrations

of which little or no note was made on the one hand, and the more diffuse but stated and prepared matter which was to be condensed by the students. The ideal of the best students was to have a full and beautiful *Hefst* or body of notes for his own future reference and for the use, perhaps for pay, of his less diligent classmates. They made little or no use of libraries, but attended lectures sometimes many hours a day. This method naturally tended to produce schools of disciples; the professor printed only late in life and when he was practically done lecturing upon his subject, if his matter was not then obsolete. While the practice differed in this respect greatly in different departments, it was often thought very detrimental to the number of auditors and therefore to the professor's pay, which depended largely upon this source, to print, because there was no other way of getting at the ideas of a famous man than to hear his lectures. Reputations grew great in the perfervid minds of youth in this feudal if it be not better called tribal stage of development, and learning was more esoteric and the monopoly of universities. This was the direct continuation of the method of the porch, the grove and the academy, and it certainly has many distinct pedagogical advantages. Knowledge that enters through the far older and wider gate of the ear seems to sink deeper than that which comes through the upstart source of reading. It gave the great masters a moral and therefore disciplinary eminence and developed the instinct of fealty and discipleship in youth. Books were not sealed to the student laity as was the Bible of old; but the very bad library methods, the expense of purchasing, and the greater self discipline involved in a student's forcing himself to sit in his room and read alone rather than to sit socially with others and have knowledge poured in tended toward giving the professorate not a little of the oracular quality, which the priesthood had possessed as the exclusive interpreters of "The Book." Thus printing for the German student up to recent times and indeed often now remained uninvited, and he lived for the most part in a pre-Gutenberg stage of existence.

The very mannerisms and forms with which the professors formerly hedged themselves about added to the lustre of the halo which each student saw about the head of his favorite master. The beadle preceded the instructor and ushered him with a sometimes more or less elaborate ceremonial into his room, carried his manuscript and laid it before him, with a glass of water, sometimes calling *silentia* and acting as a kind of sergeant-at-arms until the lecture was fairly under way. The professor wore his academic robe, the lustre or number of the hues of which indicated his position. He stood or sat on a high dais, usually plain but sometimes much carved and

decorated ; all rose to salute him when he entered and sat only when he bowed permission, perhaps applauded and always rose to let him retire first. All this developed on the background of the methods of mediaeval university government, where a student was exempt from all other authority, even in the case of crime, and arrested, fined and imprisoned by the academic court alone, and all tended to develop reverence and respect on the part of the student and often an hypertrophied *amour propre* on the part of the professor. This, of course, was especially true in the departments first of theology and later of philosophy, and all have heard the well worn anecdotes of professors who announced with an air of slightly veiled omniscience, that they would the next day or later demonstrate the existence of God, as though he had been waiting all these years for having the due honor of this proof conferred upon him ; of philosophers who established the reality of the world, as though it depended upon their ratiocination, who refuted or established the many "isms" and "ologies" which abound in the history of speculation, as if they were Sir Oracle or the mouthpiece for the revelation of a pantheistic or other god ; of those who claim to ignore all other authors and to lecture only upon their own discoveries, and of the more recent epistemologists who adjudicate on high ground between science and religion, issue its credentials and letters patent now to one and now to the other, classify all departments of human knowledge by triangulating vast mental spaces real or assumed, decide how far the senses, the laboratory and science generally can be accepted or give logical grounds for holding what every sane mind has accepted long before on the sounder basis of instinct or common sense.

In the mode of delivery many European, and especially German professors do wonders, both good and bad. I have heard an eminent instructor at Heidelberg, who must have elaborately cultivated every oratorical grace within his reach. He stood, gestured and articulated with finished grace, and often with a fervor, pathos and dramatic force, which sometimes so entranced his hearers and swept them away that notes were forgotten and applause punctuated his well rounded periods. One had three steps behind his Katheder; at emphatic phrases he would mount one, and with those he most emphasized he rose to the top, seeming to grow tall and expand as well as to come nearer his hearers as he leaned over with the thoughts that surged up and sank back in mighty tides within his soul. It was a singular and unique effect which may be commended to Delsartean and other teachers of elocution. Occasionally professors of literature read either in German, Greek, French and other languages, select extracts with a style that is very effec-

tive. French professors at one time especially cultivated these arts and took lessons in voice building, elocution and rhetoric from the great professors at the Paris school of dramatic art.

Generally, however, all these devices, especially in Germany, are utterly neglected and the clear eyed, cold muse of reason alone presides. Some by accident or perhaps design give free vent to many a personal idiosyncrasy and a rich and rare collection of professorial automatisms might easily be gathered as basis for an interesting study. A very eminent professor of theology, now dead, habitually came to his classroom with his pants in his boots, at least on one leg, and occasionally forgot collar, necktie and his morning ablutions. His long locks were dishevelled and often hung over his face, and he automatically threw back his long front lock with a curious toss of his head or stroked it behind his ear scores of times an hour. Another could not lecture without fingering his pencil in a very characteristic way and is said to have adjourned his class, when he had forgotten it and no one offered him one. I once heard a Berlin professor, who almost ran into the room, began his lecture with the usual *Meine Herrn* before he had got to the desk, and lectured with a rapidity that almost amounted to *Gedankenflucht*, and which the usual protests of his students by scraping their feet, which is generally so respected, could not retard. A Leipzig professor, I heard, habitually gazed out of the window to a peculiar knot in a tree and was upset when it was felled. Another always turned over his leaves back and forth as if vainly trying to find his place, lecturing all the while with great continuity and force. Another lowered his voice at the important points, so that it was barely audible, and there was a great rush for front seats. I have seen students tiptoe close to the desk to get their ears a few yards nearer his mouth that no priceless syllable be lost. One who was lame and was wheeled in and lifted on to a curious kind of saddle, would sway about left and right, until we feared he would fall although he clung to his desk, as if taking an hour of gymnastics. Another stood rigid and immovable and spoke in a tone of almost absolute monotony, not so much like a martinet as an automaton, suggesting the machine minister with a revival stop, funeral stop, etc. Another sank down in his chair with an absorbed, abstracted air, looking toward his feet, and soliloquized smiling, sometimes chuckling, or bringing his fist down with a heavy blow annihilating pessimists or humanists as if fighting flies. Not infrequently he ignored the bell and had to be reminded by a growing noise of feet that the hour was up, when he would suddenly come to himself as from a trance and almost literally scoot from the room. Generally lectures are carefully prepared, perhaps written, but a distin-

guished epistemologist in Leipzig was fond of taking his text from a bird on a tree without, some salient object or act before him, and developed the mysteries of the subjectivity of all knowledge, taking fire as he went along like the wheels of Jove's chariot. He began with a thin falsetto baby voice and ended in stentorian. A long list of curious personal peculiarities and automatisms, which have slowly developed in connection with the psycho-neural tension of thought in the lecture room, might be enumerated, and some professors actually seemed to take a degree of satisfaction in the good humored marks of appreciation and even ridicule of their students, perhaps thinking these gave saliency to their individuality or made the subject matter stand out because of these labels of idiosyncrasies of which some had such a repertory. The number of difficulties and distractions of this kind, which students overcame to get at their pith and drift, may have been thought to measure the amount of appreciation, or mayhap there was an unconscious sense that the students loved the truth all the more for the hardships of this nature they had to encounter to attain it.

We have an interesting record of the devices of certain mediæval pulpiteers whose sermons were punctuated with a code of hieroglyphic signs, which meant—here hem and haw; here use the handkerchief to eyes or even nose; here, a long pause; here, snuffle or sob; here, fast or slow; high or low in pitch, loud or whisper; here, ha! ha! or use some other interjection, sigh, gasp, aspire; here, close the book or manuscript, fold the hands, kneel or gesticulate. Perhaps this instinct, in a very attenuated form, still survives in the elaborate directions even yet sometimes given in text books for the florid and over elaborate gesticulation taught in colleges; the double front pronate, supinate hand; the pointed or quivering index finger; the high middle or low double front, half front, expanded, vertical or horizontal gesticulation, sometimes represented in the books as positions in a sphere, of which the shoulders are the center and the utmost reach of the finger tips the parallels and meridians of latitude and longitude. In one I know not how well authenticated case, a rhetorical instructor locked his man into an elaborate and adjustable machine with grooves for each cardinal gesture, once in which, it was said he could make no awkward movement. All this mechanism directly tended to divert attention from what should always be the first or inner circle of resources to be exhausted before the elaborate manual disciplines were studied. Stress, inflection, rate, pitch, timbre—these are the most immediate and effective accompaniments of speech and the best media of psychic inflection, and only when these are exhausted and the intensity of the psychoses overflows to arms do these secondary

media cease to appear artificial, mechanical and stilted. The Delsartean precept, taught by perhaps the most eminent expositor of this system we have had in this country, that the novice should be trained by rules to even vocal and facial expressiveness, so that by pulling the right laryngeal and other trigeminal muscles he can move his hearers, remaining unmoved himself, and thus sparing himself the strain of emotionality as he speaks or acts, is surely not only mistaken but vicious and stultifying because anti-natural.

On the other hand, some academic teachers have become artists of a unique type nowhere described or even mentioned in any book I know. The late Professor Kirchhoff, the eminent mathematical physicist of Berlin, also a very original and creative mind, prepared each lecture to the most *ad unguem* details beforehand, and although his lectures were essentially stating equations as he wrote them on the board, they were so perfect and lucid, and his handwriting so like copy plate, that I used to feel it an artistic pleasure to follow him, as I did one semester, although his mathematics were often so far beyond my ken that I could not understand them even by a careful subsequent study. I persevered in the course because charmed by the complete finish of the style which here made so much of the man. Helmholtz, on the contrary, one of whose courses I followed,—a more *Bahn-brechende* intellect, to whom one of his students paid perhaps the highest tribute ever rendered an investigator, that his every serious thought came nearer than could be said of any other human mind to being an addition to the sum of human knowledge,—was slovenly, careless and constantly erasing long equations, which had been copied from his musty little pocketbook, to start over again, once losing nearly a whole lecture thereby. Du Bois-Reymond, who generally gave half a dozen public lectures open to all comers, who packed the largest Berlin auditorium, rivalled Tyndall and Huxley in his masterly modes of presentation, to say nothing of the many accessories he used. He was fond of sugaring off salient physiological themes and working them up in popular form. Many of these have been printed and are accessible, and will always serve as models of what a great scientific mind can do if it seriously seeks to reach a larger circle of non-experts, braving thereby certain prejudice, which still arouses a mild suspicion in the student mind, that one who can talk so well to the people lacks the supreme gift of original discovery. In his introductory course in physiology, five hours a week for a year in his own laboratory, Du Bois-Reymond was also of all those I have heard perhaps past master in all the arts of presentation. One chief assistant and a corps of helpers were often busy during the entire preceding day in setting up appar-

atus; hanging charts all over the room; cutting or harnessing dogs, pigeons, rabbits and frogs to perform their often gruesome part; preparing stereopticon, electric, acoustic, optical and other illustrative devices.

Here one had little time to write unless he could do so with his eyes elsewhere. Even the young and lamented genius, Christiani, had to stand beside his master and work these devices during the entire hour. The marvel and beauty of it all was that everything went, and alas for the assistant who set up a device that failed to go. Here we had opportunity to see and afterwards to inspect the operations of nearly all the standard experiments in all the departments of this great subject, things which even a professor who spent his life in a laboratory might never see again but would have to take on trust. The great labor and expense of redemonstrating, of setting up and then laying aside ready for next year's use all this magnificent equipment, was an inspiration, and perhaps no science, not even chemistry, in which Kolbe in a Leipzig laboratory was said to emulate this physiologist, affords such opportunity. In the archway over this chemist's desk was inscribed the maxim: "God has ordered the world according to number, weight and measure," and the exactness thus suggested was this teacher's inspiration.

The German pioneer in this scenic pedagogy was Czermack, who with the aid of his wealthy wife built what was well called a physiological theater in Leipzig, that after his death stood empty, was sold and finally destroyed, because none could wield this spear of Achilles, which until Du Bois-Reymond illustrated the phrase of Longfellow "The unfinished window of Aladdin's tower unfinished must remain." Here a series of diagrams like theatrical curtains were prepared and filed in cases mounted on forms and let down on rollers at the proper signal; others came up from the floor of the platform or on traps and others were slid in from the sides with all the available methods of calcium and stereopticon, to which alas the kinetoscopic methods were then wanting. In some departments the power of rapid and effective drawing in the presence of a class with the various colored chalks has been an art much cultivated and highly developed. It requires almost as much special training to be able to talk rapidly and coherently while sketching as it does to reel off the patter of the modern conjuror, with his eyes and words directing the attention of the audience to one point while his hands are performing the skillful and essential manipulations which the trick requires at another. This, however, I have seen carried to a high degree of perfection, especially in morphology, where it is often essential to develop the picture to show the order of the evolution

as the growth of parts or organs. Some draw most charts themselves and with extraordinary rapidity and perfection beforehand. We had a striking illustration of this at the late decennial at Clark University in Professor Ramon y Cajal, who left behind a series of large wall charts illustrating his own discoveries as well and perhaps better in some respects than any of his printed cuts. Professor Morse, as is well known, has added to his own attractiveness as a lecturer, so far as I know the entirely unique facility of drawing with both hands while he talks, provoking applause often by the ease, celerity, and dexterity with which he illustrates sometimes even the most commonplace and unnecessary points.

Every one who lectures steadily for a decade or two develops his own methods and perhaps ideals in lecturing. I can hardly draw at all and undertake it only in emergencies or where it is absolutely necessary, and indeed can hardly write. I have gradually almost abandoned stated quizzès, but make it my chief endeavor to present as concisely and saliently as possible the methods and results, in a way that shall be interesting and stimulating to further study, aiming chiefly at the quality of suggestiveness. I like to use many charts and wall maps, and at the Johns Hopkins University had a draftsman at my disposal several months each year, to copy all important cuts of apparatus, illustrations of instinct, brain charts, curves and tables, and had these elaborately ticketed and filed in rolls in an immense chart case constructed for the purpose. I believe in exhausting the possibilities of the graphic method, which has so large a scope in experimental psychology. Kymograph curves and even original cuts from archives can be passed around in a small class, which should always have immediate access to all the year books, dictionaries and more illustrative hand books possible. The lecture itself I always prepare, spending the entire forenoon until eleven directing upon it, warming up old matter and working in what new I can. The practice of nearly twenty years of almost daily lecturing from eleven to twelve has actually become a neurosis and my brain goes off more or less automatically, almost on the stroke of the hour, so that even on holidays and during vacations I can dictate and my friends say become unwontedly loquacious during that hour. It is my stridulation hour when if at all during the day my brain crepitates. From perhaps a quarter or half past seven to eleven, have become by long habit the best study working hours of the day, as perhaps they are by nature, when I can read receptively and think better than at any other time, while there is a secondary wave of evening augmentation or acceleration although the curve is lower. While I always

lay stress in final examinations upon the matter in my lectures, I consider that they have been most successful if the students are found later in the library following up the topics in the references which I always weigh with great care, trying to give enough but not too many and lay due stress upon those that are best and most recent, taking special care that the best shall be reserved and all accessible. To open a new topic in such a way that the all dominant first impressions shall be favorable, and to generate interest and create mental hunger for more is the goal of endeavor. The best reward is when students say to me afterwards that long standing difficulties have been solved, doubts cleared up, connections hitherto unseen have been established, points previously not comprehended made clear, or, best of all, when they come round to question, seek further light, or even to discuss and differ, or dissent. It has often seemed to me that if a lecturer could so far subordinate his own instinctive desire for authoritativeness and deliberately seek occasionally to challenge contradiction in such subjects as psychology, philosophy or ethics, and rouse the hearer to read and think in order to maintain an opposite view later, it would be a pedagogic method of rare efficacy. Few things are remembered so well as those where in a bright student believes he has successfully vindicated an opposite opinion, or proven an error in his teacher's work. Nor is it necessary for the latter to deliberately introduce perverse views, errors, or other personal artifacts into his course to secure this precious result, for Jove may nod, and most professors would not be hurt by confessing *sub rosa*, or at least to each other, that their work has involuntary fallacies enough to secure this end if dissent is invited. Hence it has long been my practice to ask at the beginning of each year to be interrupted at any point or to be questioned concerning any view or fact at any time, and this opportunity has never been abused but always utilized with profit to both teacher and taught.

There is a great difference between a lecture which seeks to present the main points and general outlines of a subject to beginners and one which deals with it in a more specialized way for advanced men. It is mainly in the latter course that one can prudently introduce matters where he has sought to be an authority and not an echo himself. The instant these fields are touched there is unconsciously and irresistibly a new spirit in the lecture room. The instructor cannot help feeling greater zest and therefore inspiring interest and tension. His own thought moves more freely and largely; he is a master and takes his hearers to the frontier and is not absorbed in the mere canalization of second-hand knowledge. Truth lives now from mouth

to ear; we are on the frontier facing the unknown; unwonted authority creeps into the very inflections of the teacher which meets instant response. We are moving above the cloudy atmosphere of books and are disporting ourselves on the mountain ranges. Many shades from certainty down to the faintest possibilities are discriminated, when heretofore a bald statement of fact with a few degrees of probability sufficed. Now too, one can criticise others with freedom and appeal with judiciousness to the passionate love of conflict, which fires young blood like the note of the trumpet of battle. If American professors would criticise each other plainly enough to reveal instead of with over courteous deference minimizing or concealing real points of difference, not only the science but the pedagogy of our department would gain. Hence the natural instinct of pugnacity carefully tempered and toned in form and spirit should nevertheless be held to, and the creative mind ought always to live out its life strenuously in the class-room. Moreover one can here turn to the future and occasionally lift himself a little above the ground on the wings of prophecy, when it comes to summing up or forecasting tendencies. Youth lives in the future and is interested in not only present but in impending issues. It loves to see how the lines between men and parties are and especially foresee how they are likely to be drawn, and while the student is prone to take sides against his instructor at the time he generally later and elsewhere, so far as my experience goes, comes round to his view, saving his individuality sometimes only by slight changes of phraseology, sometimes, even, as I must indulge myself in thinking, for the worse rather than for the better. Students want to see their professors on their mettle; they crave to know the things they deem of the most importance in the world; those best, those worst, and why. They thus preform their own souls for the latter struggle for mental existence, and if the teacher is a good and great man they form precious and indelible experiences with the phenomena of altitude in a way that saves many an individuality, and lets loose for the first time a sense of innate power which perhaps might otherwise remain during a life time smothered under the weight of the accumulated knowledge of the past. The active faculties, the efferent processes that enter on the hardier life of doing and scorn the easy luxury of mere knowing, are kindled and become later the beacon fires of ambition. Not only all this but there is always increased vitalization of a larger or less body of dead information and knowledge, which becomes potentialized and passes over from having to be hospitably entertained or laboriously retained and becomes a part of the apperceptive power which carries other knowledges rather than is carried. Facts and laws thus undergo a process of higher digestion and assimilation, so that the

good of it is felt over the whole field. The line of demarcation here invisible to most is very clear and distinct for those who have this seeing eye. This, I think, is the chief note of difference between university and collegiate instruction. Not but what the latter has to deal largely with the acquisitions of the past, but it must vitalize all it has any right to use by the creative afflatus, or it is not academic in a university sense. Clear as this line is, it is not sharp in the sense that requires the exclusion of all introduction to independent and originating activity in college. The criterion, however, insistent as it is, is one of preponderance.

Once more the university lecturer, I maintain, should generally appeal to the intellect and the understanding first and most. The moral and emotional reactions should come through this but should not be wanting. He should strive above all things to be perfectly clear and objective, and ever cultivate all qualities of style or method of elocution that favor this and carefully eschew all that hinder it. A calm, generally a rather conversational form of statement, but with every striking phrase that can be devised, with most incessant quotation of all crucial or characteristic forms of statement, repeating diligently every real gem of phrase from every writer he cites in order that the greatest economy and the easiest mode of approach and apprehension be preserved, but with a style that is flexible, alternating long and short sentences each of which has its peculiar power and place, and distinguishing by unconscious plasticity of utterance between what he deems most and what least important;—these I deem ideal goals. I have heard a lecturer who occasionally made use of sentences so long and yet so well balanced that the struggle of interest to grasp all its details into one *e pluribus unum* was so great, that the breath has been held and an involuntarily long and deep gasp expressed grateful relief of tension at the close. What a lecturer Schopenhauer would have been if his career had been academic. Renan, Max Muller and Jowett had their own rare charm of style as did Buffon, who arrayed himself immaculately in his best attire when he lectured. Charcot had his very different charm in clinic as did Westphal, while Ludwig, Kuno Fischer and all others I have heard who were great were unique in style. The artistic finish of many of the new lecture halls and especially the ultra magnificent aulae in Paris, Leipzig, Vienna and elsewhere, in the late new renaissance of academic building in Europe, where the very walls behind the speaker are often decorated with the best products of the highest artists, have distinctly tended lately to make the academic teachers cultivate personal graces and even, it has been said, to create a new academic style.

The topics in our field which lend themselves to popular presentation are those that are of deep and wide human interest and which touch the great problems of life—duty, religion, love—and stir the will and the feelings. There is probably no theme of high academic interest which the real artist in pedagogy cannot make fascinating to the general public, but such artists are very rare, so that there is generally a great gulf fixed between the student, or even expert, adept, esoteric initiate on the one hand, and the sphere of popular interest on the other. The dimensions of this chasm, the success and the frequency of traffic upon the various modes of bridging it, are of great importance in the history of culture. In democratic lands and ages, laymen insist that there shall be no barriers, and that nothing be too recondite for open access by them, and this being attained socialists now often prate of the duty of bringing the university to the people and charge professors who do not or cannot talk to the edification of their own ignorant level with being bloated bondholders or selfish monopolists of knowledge, the sequestration of which some would prevent if they could by a stand and divy up of brains. On the one hand, practical and business interests are quick to respond to every possible lucrative application of the results of science and are constantly drafting from academic life scores of the ablest young experts into the technique by offering larger salaries and by hopes of national prizes. On the other hand, academic leaders, especially where universities are dependent on the State or municipality, fear to get far out of touch of the average representatives of the people. Legislative committees are often quick to scent and censure any very extensive traffic in knowledge which can never, by any possibility, reach their own door or bake their own bread. Hence the growing preponderance of practical and the decline of theoretical or pure culture studies, especially in State universities. The necessity of keeping close step with the masses has been perhaps the leading motive in the recent vulgarization of knowledge by the countless university extension courses which, sincere, earnest and able as are many of the teachers, and serious as is often the interest in such courses, have been too often controlled by the altogether too dominant lust for money, students and for popular favor. As recruiting stations, as bread and circuses to the populace impressed by the marvels of the microscope, magic lantern, the telescope, the simplifications of literature, art, history, sociology, etc., they have been successful and brewed and fermented a body of good will that has told on the student list and the size of annual appropriations. These extension stations too, have been valuable schools of the pedagogic art of lecturing for candidates for

professorial chairs where many of the best instructors have served an apprenticeship in teaching, to which they have ever afterward owed much, and have also sometimes relieved the pressure of the over-supply of masters and doctors, who now hover in swarms about every vacant professorship, the excess of which may breed a learned proletariat, such as Billoth complained of in Austrian medicine some years since, where not only professors but successful physicians were constrained to assess themselves for bread and clothes for starving graduates.

Where material and intellectual progress is rapid, as it is unprecedentedly in our day and age, the number of those whose education had to be neglected in their early days, while they battled with life, but who in middle or later years acquired the leisure that competence brings and who lamented and sought to make good their deficiencies by further study, this is an inevitably widening field of demand which must be supplied.

Under the first republic France found as one of the products of the Revolution and born of kindred instincts to those which made Protestantism and forbade the monopoly of all the ways of salvation by the priestly class, that it was necessary for the University to open her doors to all during lectures of famous men. I have myself seen bums from the street snoozing on the back seats, who seemed to have been attracted partly by the warmth, and who would rouse and go out if a band passed on the street. When a few years ago, the *École des Hautes Études* stopped this and closed its academic doors to all but those who had given prescribed guarantees of fitness, there was a great cry against the so-called arrogance and monopoly of knowledge, fortunately not so strong, however, but that the government could resist it. As knowledge advances, it necessarily needs a longer and longer novitiate; technical terms multiply, and a larger proportion of all its works and ways must be withdrawn from the public eye. Lecky and Schopenhauer have enlarged upon the retardation in the advancement of learning which they ascribe to the necessity of pausing to take woman along upon the higher paths. However this may be, there is a certain great loss of acceleration in hitching the masses to the triumphant engine of scientific progress, so that the problem often arises whether the gain to the former outweighs the loss in the latter respect. All those who hold seriously to the principles on which the common school rests agree in their answer, if indeed they do not non-suit the question. For myself I am entirely persuaded that it is possible to bring to the average mind of the lower quarter of our communities or to boys in the middle teens some degree of real comprehension of every great problem worthy of human interest, and every

failed attempt to do this means either pedagogic incompetence or a miscarriage of scientific endeavor or wrong direction.

I have always felt it both a high and large duty as well as a pleasure and a valued discipline to select a few themes best adapted thereto from my class room lectures and work them over for popular delivery. The best and those most often repeated have been changed most radically from their previous form. The public wishes large themes and large relations, so that it is needful to summarize several class lectures for the best results. A few of these I have delivered perhaps several score times; have rewritten them by syllabus and catch word and re-planned over and over again with the constant tendency to emphasize the points approved and slight or omit those not appreciated, so that those which fit best the popular audience are those that touch upon the largest ideas and especially emphasize sentimental values. The public has within the last few years drifted far from the old ideas of what constitutes finished delivery and form, typified for instance in G. W. Curtis. They appreciate art and perfection of detail, but there must be no loudness or mechanical exactness about it, little anecdote, but far more subtlety, hint and inuendo of meaning. Intellectual brilliancy is sometimes preferred even by woman's clubs to emotional fervor, and never probably in the history of the world has there been such an appetite for novelties and ideal reconstructions that involve sometimes almost a reversal of many a current consensus of opinion or settled practice. Originality is now the most desiderated and welcome form in which individuality or personality can be expressed. While there is interest in all the best and while our ideas of every part and aspect of it are undergoing radical transformation, a great desire of the popular mind is to forecast the future, and even the past is interesting chiefly as it enables us to do this. The world is in love with ideals, and in this country at least, is most plastic to them. How can we so live out our lives that none of the tendencies in us be allowed to degenerate, but the world become plastic to be moulded by the will, is now the ultimate problem.

This is perhaps the very tendency which fascinates us with Nietzsche's *Uebersensch*. We need not agree with him that with Christianity society was overturned and the lowest and the weakest became regnant; that fear and humility have domesticated man to a tame house animal, the *ein stück Heerdenvieh*; and that proletarian instincts now make the development of a really great character almost impossible. We need not hold with him that Christendom is a revolt of slaves overcoming and taking vengeance upon their masters; that in the renaissance the grand ideas of the ancient Greeks and Romans

were aroused, but democracy and the reformation and the yet more plebian revolution brought the vulgar masses again to dominance. But there is no doubt that the average man at the bottom of his soul gives little more than formal recognition to any power higher than himself. He does transvalue morals and tend to a new interpretation of right and wrong. Self abnegation, penitence, humility and pity he feels do not become him, and he wants to enlarge, perhaps inflate, himself to the utmost dimensions consistent with the continuous self-identity of his nature. We are tired of the cowardliness our traditional and artificial consciences make; we are weary to satiety of self and want a larger environment for our wills, where we can escape the satiety of our *fin de siècle* life. The gifted who have great will, strong feeling, brilliant minds need most to outgrow the narrow range of popular ethics and perhaps we shall have to come to agree with Nietzsche that evil is that which prevents the development of this national aristocracy, and that good is that which favors it. The *Uebermensch* has his own code of morals, but it is vastly different from that of the masses. He loves a strenuous life and cannot regard this as merely probationary, even though he is not ready to say that there is no other. Development, first personal and then social, is the inspiring watchword of all. Compassion for the weaklings who ought to be eliminated is not his foible. His individual is sovereign and sacrifice is not his fort, and certainly not for the lowly. Greatness exhausts all the possibilities of nature and lives out all that is in it fully, strongly, generously but irresistibly. It despises every sign of decadence and degeneration, and its gospel is health, wholeness and euphoria. It would be too far aside from my present purpose to show in detail how this diagnosis of this great paralytic fits the popular lecturer's estimate of meaning of the kind popular demand for his wares.

— In this age of marvellous growth in all departments of knowledge, specialization is inevitable and the old prejudice against it is waning. For decades the advocates of general culture have asserted or implied an antagonism, which has no existence, between it and the mastery of some specific field or theme. The "bugologist," the man who knows nothing but what Latin names to attach to plants, animals or stones, clouds, stars, etc., has long been the stalking horse or awful example of not only narrowness but unpracticality and ignorance of all that lies within the homely ken of common sense. Men who realize this ideal have in my belief always been as rare as arithmetical or musical prodigies, who are also sometimes semi-idiotic. This danger is mostly felt by teachers of grammar and high schools,

and most often finds expression in their meetings. Occasionally a college professor or even president, who has pedagogical gifts but lacks those of origination, or one whose mental capital consists in the vast generalizations of philosophy of a now obsolescent type, helps to keep this inveterate prejudice of the school against the university in countenance.

The fact is that the two greatest generalizations of modern science have made narrowness, if it ever was an appanage of the specialist, henceforth almost impossible. The first of these is evolution which subordinates all botanical and zoölogical classification to its larger generalizations. Every organ and function from the cell up in the great biologic field is related to every other. No one knows muscle, brain, liver, etc., well for any species unless he knows evolution in all its stages. Thus everything in this field has become more or less comparative, and the influence of Darwinism here has extended to the methods of nearly all those sciences which deal with man. We have not only comparative anatomy and now even physiology, but comparative religions, comparative philology, psychology and mythology, etc. The family, State, church, school, and nearly every human institution are now studied in this way with the assumption so often expressed that he who knows only one religion, language, ethnic set of customs or institutions knows none.

The other great law is the conservation of energy, which links especially all those sciences which deal with inanimate nature, especially physics and chemistry, and their various offshoots and relations. All physical and material processes are thus now studied as manifestations of one great force or energy in the world, if not of one great material background principle. Thus on whatever topic, however tiny, one specializes, he is obliged to go back and down from his apex toward the more and more fundamental conceptions at the base of his pyramid if he undertakes good or lasting investigation. This propensity of modern science to assume cosmic dimensions or at least to get into wide rapport with universal principles more or less definite of itself makes specialization a necessity of modern culture, which otherwise would be in a danger, never paralleled since Alexandrian and mediæval speculation, of losing itself in mystic conjectures and vague generalizations. I know an eminent professor of physics, who has a case in his library devoted to what he calls the crank literature of his subject in which he places an astonishing list of works of great popular renown by eminent men, because they deal only with theories and conjectures in the field of nature, now so tempting and dangerous to all not securely anchored by mastery of all the details in some definite sub-department of science.

Partly in view of this, but also of other conditions, I began years ago to hold occasional library evenings in my study, where, after some preparation, I simply demonstrated books a little, as if they were specimens in natural history. Standing before a case, I go through it shelf by shelf, taking out each important book that has influenced me, telling in one or a few sentences, the best chapter, paragraphs or thoughts in it; sometimes reading even a page; and passing it around, always with special thought of either the personal or the thesis needs of each man. Here, for instance, is a two leaved communication of Helmholtz, issued in 1852, describing the germ thought and picturing the apparatus of nerve times, now out of print, for which I paid \$8, but which is the germ of very much that has been done since, as well as a model of condensed presentation of results, that it took this master nearly two years to attain. Here is a forgotten old pamphlet of Fechner's presenting, too, in their wildest form, the vagaries or the night side of this marvellous mind, but especially significant to one or two of the men. Here is a chapter in a recent work, summarizing a long train of investigations, and here a digest of all that has been done up to date along another line. Here is a rare story of the inner workings of the mind of a lunatic, documented in a series of articles in an out of the way journal of insanity; here a minute study of three cases of very elaborate and systematized delusions; here a paper on instinct, that although more than a decade old, anticipates much that has been done since; there a translation of the first part of a Russian book, the later series of which never appeared, but which is a model of pith and brevity. Here is a row of new books sent for review to my journal, which I have glanced over enough to find one or two of great value and point; in this article, Minot, in that, Flechsig, in another, Cajal gives a key to his methods or results. A marvellous article of Lotze, often unknown by those who study him, in an old physiological dictionary, is brought forth; here a friend—an eminent author—has sent me a rare work he came across, of much psychological moment; again, here is a work lately much praised, but which I deem commonplace or worthless to the expert. Thus I continue, until in the end, each student has held in his hand and seen at least the outside (a point I deem of considerable value), of about all the sources of what little wisdom I possess, and can profit from the "finds" of all my academic life, and also by its mistakes. The *encheiresia*, or manipulation of the best, any of which they can draw by entering them in my book at any time as from the library, often, alas! to my great inconvenience and often to my sadness, as I discover laxities of the biblic conscience that returns books, has pro-

duced results I think highly valuable; and while it has perhaps revealed the secrets and thereby lessened the charm to others, if such there was, of my own little wisdom, it has helped to put the pupil on my shoulders and enabled him in some sense to begin where I left off.

Although the university seminary, as a group of advanced men meeting with a professor for informal but more or less systematic advanced work, is a recent development, its principle goes back to the academic lyceum and porch and probably much farther. A great philosopher described his idea of heaven as prolonged conversation with the brightest minds on the highest themes, and another conceives this as the highest of all human fruitions for the sake of which all the institutions of civilizations exist and in which they culminate. The charm and the stimulus of conversation is unequalled by any other intellectual incentive. Question, answer, debate and dialogue; the give and take with many men of many minds; the sharpening as iron sharpens iron of a face by that of his friend—all this rightly carried on appeals to about every sentiment, emotion and incitement to intellectual activity and growth that exists in the human soul. A book is a dead companion. French literature owes its style, unsurpassed in the modern world of letters, to the fact that for a long time the salon dominated literature and men wrote in a talky way instead of talking in a bookish one. The strong gregarious instinct which makes a man shun solitude and love society; the preciousness of friendship, consolation, insight, courage, love, hate—all are expressed in word of mouth so far more directly and come so much fresher and warmer from the heart than from the pen, and are received with so much less change or loss of import through the old avenues of the ear than through the visual study of the printed page. Plato knew how to conserve a little of this dialectic and dramatic charm by his dialogue method which many philosophers have striven for with very imperfect success.

Into the well conducted seminary all the hereditary influences from all the council camp fires and stories of our forebears, a little of the esoteric spirit of all the secret organizations of savage life from the immemorial past have gone and in it they find one of their highest expressions in the modern life of culture. No department is so well calculated to bring out all the power of this new-old and complex pedagogic instrument. We have here not only the play of different personalities, temperaments, characters, age, experience, and sometimes even sex, but also the unique charm of interplay of different philosophic schools and standpoints, and that, too, just at the point where

innate disposition is in the most fluid and plastic stage of transition over into the labelled schools and sects that mark the history of man's highest thought about his own nature. This was expressed in the practically lost etymology of the word philosophy or love of a sapience not fully attained or definitized. Young men are in the process of finding out whether they instinctively lean most toward materialism or spiritualism, optimism, pessimism, scepticism or dogmatism and all the rest, among and about which supports their growing souls are orienting and circumnutating. The one distinctive note of a good philosophical seminary is freedom, and not only must there be nothing repressive in its atmosphere, but everything calculated to evoke and unfold the crudest stirrings of the soul should here be invited to expression. Reserves or preponderance of any one system over others should be banished, and the talk should be not only mind to mind, but on occasion heart to heart and conscience to conscience. There is a vagueness and mysticism about youth that is inevitable at the time when sentiment is ripening into thought and reason, and which is a very different thing from the settled creed of the mystic, just as there is an honest questioning and doubting which has nothing to do with the settled adult scepticism; to mistake the two is a serious error. The rabulist and the sophist, the debater, the settled advocate of the tenets of any one school, the man of any saturated orthodoxy, the literalist or bibliolater, and the dullard may all sometimes need repression in the interest of the whole; but even they more often need to be drawn out to feel their errors rectified by the reactions of the sense of the whole upon them, until they can burn the smoke of their own imperfect mental combustion. All this the tact of an experienced and wise leader ought to be able to secure.

In my own experience here, many methods have been tried. I began, years ago, a weekly conference around a large table in the evening at the Johns Hopkins. I selected bright men tending toward very different standpoints, and asked each to write down concisely his own beliefs, tendencies and questions about the larger themes of philosophy, relying upon the difference of individual minds to vary sufficiently the attractiveness of each evening's programme. Another year I tried to devote one or two evenings to bringing out in conversational way, by a leader appointed weeks beforehand, the main philosophic standpoints and to invite discussion on each. Other seasons we have read Kant, Plato, Schopenhauer, parts of Darwin, Spencer and others, interpolating discussions at every fruitful point. The methods of one of these years has been characterized, in a way, in a popular monthly by a student

member.¹ I have also tried the seminary in the afternoon, but the university building and the garish day do not, for some reason, constitute the best environment, so that gradually in the last ten years I have settled to Monday evening from seven to ten in the Library of my own house. We have not deemed it advisable, as in two or three such clubs I know, to introduce the German method of smoking or sipping beer, but have broken the long hours by a fifteen minute pause for refreshments, in the dining room across the hall, served by my wife, assisted generally by one or more university or other ladies. The numbers have ranged from six or eight to over forty, with an average attendance of about twenty in recent years. One member is appointed in advance to read or otherwise present some account of either the whole or a part of the work he is doing, perhaps for his thesis. Instruments are sometimes brought from the laboratory across the way, or charts exhibited or blackboard work done, or cuts or illustrations passed around. The leader, or talker of the evening, invites question and discussion at every point, and usually reads perhaps three-quarters of an hour or more, the other three-quarters being taken up by a free discussion, with a different man and theme, usually a little briefer, after the lunch recess; so that there is a change of mental scenery and two subjects an evening. I do myself such very informal presiding as is necessary, but often have nothing whatever to do save to call on each man to read. Very rarely indeed does discussion become personal in any offensive sense, although even here I seek to give long line for the interest which may thus be generated. If interest lags, I often call on those I think most competent for comment or remark. As a rule, discussion is animated and very stimulating and instructive to all, myself included.

The advantages chiefly gained here are first of all, each man becomes well acquainted with the work every other is doing, sympathetic enough to follow it and get the advantage therefrom second only to that which comes from his own work. Each paper averages greater weight and importance than does one of my own lectures, because it is more condensed and especially because it generally seeks to deal with a totally new theme and view point and has the stimulus of competition because done by a student rather than by a teacher. In the topics selected and the treatment, while as elsewhere indicated most aim at an original contribution, they must nevertheless avoid the Charybdis of ultra specialization; hence as a rule all are interested in the work of all and those ethically or meta-

¹H. Austin Aikins: From the Reports of the Plato Club. Atlantic Monthly, Sept. and Oct., 1894.

physically inclined rarely lose touch with the laboratory man and *vice versa*, although here lies perhaps the chief danger. Hence the interest and the profit by this seminary method is certainly greater than by any other with which I have had experience either in this country or in my European pupilage in six. Each man pools here for the common benefit all the facts and inferences he is able to evolve in a year's work, and thus the evils some might ascribe even to this degree of specialization are at least mitigated, because each here keeps in rapport with the work of all. The interest generated evokes, too, a large return to the reader; for many an important fact, law, or literary reference is suggested to him by his fellow seminarists. Facts are often disputed; methods of experimentation criticised; logical processes rectified; obscurities and difficulties lessened, so that we have here a method of joint or collective intellectual endeavor so great that co-operation is volunteered in the way of securing questionnaire returns or serving as subjects for experimentation in the laboratory. In those themes where a large and varied body of personal experiences are needed spontaneous contributions often turn the seminary for a time into a kind of psychological experience meeting, and not infrequently debate has been prolonged sometimes an hour beyond the regular hour for adjournment.

Here especially the instructor learns to know his men to gauge the amount of their reading, the accuracy of their thinking, the quality of their minds, their religious and philosophic standpoints, and a good deal about their tempers and dispositions. Here he has one of the most exquisite pleasures of the pedagogue in seeing his men grow from month to month and knowing the amazing difference between good and ordinary quality. He can also form a pretty good opinion of the pedagogic capacity of each man, which may be of real service to him when called as he often is by many teachers' agencies and college presidents for a personal opinion upon that subject. He sees more of the breeding and social experience and the great individual differences in adaptation, and learns how his men regard each other, because here all is as free and unconstrained as possible and personality during a year here reveals itself by more or less expression in almost every direction.

The standpoint of the governing board, both trustees and faculty, is so different from that of even the advanced university student that he rarely sees it. Almost every department and institution of academic life look very different from the administrative and teacher's side, and the transition for the new professor is sometimes marked by errors and mistakes. Hence I have formed the habit of giving at least one and sometimes several lectures each year on ethics, "morale" and prac-

tice of colleges, in which I seek to describe as best I can the points which weigh most with appointing bodies in deciding between rival candidates of perhaps equal intellectual attainments. I speak here of petty personal matters—manner, health, spirit of subordination, and the dangers of cockiness in young men who have served a long apprenticeship abroad and at home and come from the university to teach rudiments in a college or normal school; of the need of being helpful and not critical in faculty councils; in adjusting themselves with due plasticity to all their environments; of not teaching over the heads of their pupils, which is one of the chief dangers of those who have lately come into the possession of higher and special knowledge, but of cultivating the pedagogic art of simplicity, directness, and avoiding as clinkers in the furnace undue technicality, of which young experts are so fond, and which is so fatal; of putting up with the meagre library and laboratory facilities they may find and doing all this cheerfully and making the best of it; and of cultivating everywhere the talent of sympathy and appreciation rather than criticism. Good men thus are often turned down for sheer top loftiness and arrogance, which is often, after all, merely superficial and perhaps a mere trick of manner. Petty, commonplace and trivial as some of these matters sometimes seem to students, they are of great practical importance, and a judicious ventilation of the way in which those on the ground who know and have made the traditions of the place and are supremely and parentally interested in the future of the students committed to their care and whose policy it is to serve and develop the interests of the institution, are sometimes a most wholesome revelation. I can name men of excellent ability and with every element of success, who fail in their chosen life career as academic teachers, because of habitual carelessness in their toilet, or because in a few respects their manners were bad; or because they were at bottom self-seeking; or because they had a balky will and could not compromise or co-operate with others in a collegial way; one fails from the mere mannerism of top-loftiness or if he always speaks of and to others *de hont en las*; one is too fond of opposition, criticism and antagonism; one is irritable if fatigued. The tragic aspect of all this is to see occasionally an able man with some fault of temperament, displaying a trait which seems from most aspects slight and removable, but which a sagacious professor knows to be not a small surface stone but the outcrop of a ledge that runs far too deep to be got rid of. Professors in large institutions who meet many students casually but are not in the daily personal contact of laboratory, seminary, and conference as I have been for twenty years, learn little of this kind of individual psychology.

When the novitiate starts in his first position upon the lecture method, it is generally a new and trying ordeal, and many otherwise successful fail and for many ways and reasons. Their most common error is to pay out their body of knowledge too rapidly, so that perhaps long before the close of the year they have practically said about all they know, and their reservoir begins to "run emptyings." Many a man who ought to succeed finds that in the spring, when his class need extra attractions to offset spring ennui and unrest and the out of door attractions, he has said all his best things, and the excellent first impression he made in the fall is slowly displaced by discontent, disorder, and this last unfavorable impression being most recent may motivate the loss of his place, when if he had judiciously distributed his material so that the best came last, like a novel with a climax in the last chapter, his career would have been saved. Many novices, too, have defects that seem to them too petty and insignificant to be seriously criticised, much less laboriously eradicated, that greatly interfere with their success as class lecturers. One of the ablest men I have known inserted too many "ah's" and "ers" into all his pauses, so that it distracted the attention of the serious and provoked petty disorders in the frivolous members of his class. Another could not raise his voice to speak loud enough; one spoke too fast; another with too much sonorous magniloquence; several have petty automatisms; others have deeper faults; while most fall into the great error of assuming too much knowledge on the part of their hearers, going too fast and with insufficient elaboration and explanation of all difficulties, so that they soon disconnect with their classes and go their own way alone. Many who do well in text-book work by nature, or have learned to do so by practice, fail as lecturers from removable causes. In view of these facts, I instituted years ago at Baltimore a lecture course by students, where each is to give one or sometimes half a dozen lectures upon stock subjects to the other members of the class and to myself. This at least creates some consciousness of what it means to hold attention, to stand and talk and perhaps use a blackboard, both of which are often new experiences. It generally brings considerable consciousness of faults, and while a lecture to such an audience must necessarily be different in being more advanced than to undergraduates, good on the whole is done. Immediately at the close of the lecture, when the novitiate is usually a little conscious and plastic, I have a personal interview with each man on the basis of the notes I take, and speak to him with the utmost plainness and detail, sometimes even about his linen, and dress, but far more often about his manner and style of presentation, while he often hears in ways both friendly and disagreeable from others of his hearers. Occasionally the student who

has scorned all this and insisted that if he knows the subject matter other things need little attention realizes his mistake, while every hearer secures the benefit of a more or less lively appreciation of the faults in others which he desires to avoid himself.

Science, using the term in its broadest and highest sense to include the humanities, is the greatest achievement of the human soul thus far. It is the chief and perhaps only security that mankind will not relapse to barbarism, and is often well compared, since Kant's pregnant figure of speech, to a solid island of terra firma established on the rocks, but surrounded by fogs and mists of dreamery and angry waves and storms of popular prejudice and frenzy. Here we have the *aliquod inconcussum*, which Plato sought in a few laboriously wrought out ideas, which theologues have formulated as the data of revelation from the source of absolute wisdom, which ecstasies have sought to intuit with Titanic, heaven storming endeavor, and lack of faith in more or less of which has made all the pessimisms in the history of thought which were not distinctly temperamental in their origin.

Specialization is now the best of all modern refuges of individuality. Here personality culminates and finds often its most distinctive expression and here celebrates its chief triumphs in the modern world. The highest sense of mastery and power now comes to those who have pushed to and beyond the frontier of established knowledge and added ever so little to its sum total. To have done this marks the termination of apprenticeship to learning and constitutes the scholar a master in a sense more true and real than any diploma can confer. The scholar rises above echo, opinion, and all second-hand knowledge, and becomes himself an authority and establishes a place for himself in the intellectual world, if he has contributed ever so small a building stone to the great temple of knowledge.

One of the most significant and epoch making experience in the growth of any soul is when something first done or said, which, while the great public ignores or even derides it is recognized by the few elite near or far as a real "contribution;" and this, too, whether it be an original thought or sentiment or a discovery based upon long, tedious and minute research. The first experience of this for a young man is like its first prey or the first taste of blood to a young tiger. It marks the beginning of a new intellectual life and is a kind of logical and psychic conversion. The young contributor becomes henceforth a member of the great body corporate of science, having his own function in its church militant yet invisible. If not an organ in the body of science, he is at least a cell with functions truly

vital, and both more independent and more completely organized into its larger whole. Most of us little realize how the world to-day, whether in the court room, the committee rooms of Congress or Parliament, in the medical council in critical cases, in manufacturing processes, in all departments of trade, commerce and technology, is ruled by experts, who wherever things go rightly or according to the best available knowledge really say the decisive word. If science ever has its hagiology in Comte's sense, if it ever has its Bolandist fathers who have spent centuries in writing the lives of all who have labored perhaps in toil, solitude and penury, but with success in advancing the boundaries of science, we shall come to realize that the modern world is in the hearts of a great choir, visible and invisible, who from their urns and ashes or from their libraries or laboratories dominate our civilization and are a class just as distinct from the best teachers, students or dealers in second-hand knowledge as manufacturing is distinct from distribution of goods. Few in our day ever feel the pristine sense of freshness and newness in the world which we often postulate for the primitive Aryan, the ideal Arcadian, Andalusian, and of which spring and youth are thought to be the after-glow or after-images, but the sensation of discovery brings it back and gilds the world with the old and forgotten glory, for it is probably the most intense pleasure of which noble souls are capable, to give each aspirant for an intellectual career some taste of this experience, is worth almost any labor and sacrifice on the teacher's part. Indeed it is the inalienable right of such youth, for now first they truly know what life and the world really are.

In this function, according to my conception, the university as distinct from the college or every other institution of learning culminates. Research is its native breath, its vital air; and in the transvaluation of all kinds of educational worth that impends, those institutions will shine like stars of the first magnitude which have best cultivated this spirit and produced the best quality and largest quantity of new discoveries and inventions. This work is more sacred and religious than any other vocation of man, not only because it includes religion in its scope, but because the university is the chief and fittest organ for the evolution of the super-man, bringing out the highest and most complete results of a truly liberal education which without it is a truncated and arrested thing. Here humanity at its best blossoms and yields its choicest fruitage in these real seminaries of the soul. Here youth learns to scorn and despise the luxury and selfishness of mere knowing and passive culture and passes on to the higher stage of doing and efferent achievement. Here it learns that the true organ and instrument of

knowing is doing, and the vanity of merely remembered attainment which has to be carried and does not ripen into the power that carries.

This is a new midwifery, if not higher than the hebamy of Socrates, requiring surely no less wisdom, labor and patience, but also bringing no less reward to those whose supreme passion it is to help youth on to this, its highest plane of development. The problem of how to accomplish this result is one of the most difficult in the higher pedagogy and varies greatly in different departments. In some like mathematics and perhaps physics, the mines have been long worked and the paying veins are at the bottom and the methods are extremely elaborate, whereas in others it is easier surface mining and simpler devices sometimes suffice. The newer departments of psychology are more akin to this latter class, although the older and more fundamental departments require long discipline before the sword of Theseus can be drawn from beneath the rock.

Our ideal and method, the slow growth of years of tentative experience, has now settled into somewhat the following form. Soon after the beginning of the academic year, each student is requested to make an appointment with the instructor whose work is most in the line of his tastes, abilities or requirements, and to tell what themes he has found most interesting; on what, if any, he has written; where he has read most; what he is preparing for. A few bring their own problems, which are submitted and carefully discussed in this personal way. In such cases the professor quite often, if not in the majority of cases, finds the subject either too large or can show the student where all he intends and more has already been done in ways that it would be difficult for him to surpass; and often the student's theme, if not entirely impossible of solution with present resources at command, involves too great risk of failure to warrant the expenditure of what is perhaps the best year or two of the student's life and leisure, or at any rate is too uncertain for a doctor's thesis, where there must be a very reasonable probability that when the long net is drawn in there will be at least a small draft of results. With some temperaments this involves quite a struggle and some diplomacy. The student is sure that he has something great within his reach, while the professor knows that efforts in the same direction have hitherto only given negative results, and that it would only end in vague generalizations and conjectures or in the accumulations of figures and facts of a contradictory nature, which defy conclusions or interpretations.

I have on my shelves now no less than five elaborate unpublished and unaccepted papers, each a year's work, which have

all aborted in this way. Sometimes the student's confidence lasts bravely through the year, but though the professor does what he can to help him out and to bring to naught his own predictions, the thesis committee refuses to pass it for a degree, or editor after editor of archives, studies or memoirs turns it down and publishers promptly send it back to my *asylum immaturitatis*, of no use save to emphasize warnings to other overconfident aspirants for the crown of successful research. The fact is it requires the most diligent watch to distinguish ways that lead into blind alleys from those capable of opening up new and well travelled highways up to and into the unknown. I opine that few professors, who have undertaken such work, would not, if they made a clean breast of it, confess that the issue had shown that they themselves had often been blind leaders, or if they had not misled from ignorance had at least taken unwarrantable chances of failure. Instructors differ. Some gravitate to too difficult thesis themes or fail to see that the latter must be more conservatively chosen than if larger ventures can be made, while others are too timid, and are content to risk no more than petty variations of standard or classical researches and hug the shore. One of the chief qualifications of a university professor should be the power to feel his way by some of the subtle powers of divination to the pregnant "next steps," or better yet to strike out new lines in larger fields, and not spend a life time in some domain where they have achieved some one signal first success. To detect this power in making selections of professors and forecast the development of it in young candidates should be one of the chief qualifications of an university president. These officers would be marked very differently from their rating in other respects. Some of the otherwise best are worst here and *vice versa*.

Our instructors in the departments sedulously keep tab during the year on possible lines for research, utilizing suggestions from both reading and laboratory work and keeping a note book for this very purpose. As the year goes by and such notes accumulate, they are often found to center about some larger theme in a way that suggests approach from several sides, and until by reflection a good step is found. Many of these begin to live in the instructor's brain and to stimulate his unconscious cerebration, and some thus during the year reveal their own inadequacy, while others become centers of ever deepening interest and the ways of attack slowly evolve. At the close of the year here, instructors meet and compare, perhaps for nearly a whole afternoon, our themes, criticising some out of existence and pooling our knowledge or suggestions to the enlargement of others. Thus a year of lecturing, seminary work and thinking ought to start a little nursery of buds and

bring them to a stage of successful transplantation to other minds.

This latter is the great problem of fitting and making the individual adjustment. Sometimes a man brings a chosen theme that can be successfully modulated over into one of ours with little loss of interest or ability on his part. Sometimes the reading, lecturing, or best of all some individual suggests the suitability of some of our topics for him, but occasionally they have to be assigned, because we can find no prepotent tendency in a student's mind for one over another. Sometimes, too, there are misfits and at the end of a week or a month, either we or the student realizes that he can make nothing of his topic or can care nothing for it, and he throws it up and loses his work and tries another and occasionally but not often students bring excellent topics new and even stimulating to us.

Having once settled thus each to the work which he seems able to do best, the problem of books and apparatus must be disposed of. The library with ample funds carefully selects from all accessible sources the title of every book or pamphlet likely to be of service to each man, and most of the library fund is reserved for such expenditure. Here the work of the librarian becomes all important and is utterly different from that of any kind of public or other librarian. He must be familiar with all the year books and bibliographies, publishers' announcements, etc., and prompt to get in his orders. He must communicate with other libraries and be as eager to do as to receive favors. He generally finds many otherwise unknown references and is always running down new material and bringing forward weekly, if not daily, to almost all something each is glad to get. He is thus a diligent waterer or the *Aquarius* of the university garden, and on his efficiency very much depends. His work is not merely to produce speedily what is wanted, but to find out himself in advance what is serviceable. Unlike a public librarian, he has at hand catalogues not merely of books but memoirs in many archives, quarterly, monthly or other occasional publications, so that he can tell at a glance, if he knows either author or subject, the whether and what of the many serial studies, archives, proceedings and other special monographic literature. He even provides one or two hundred reprints of all the more important theses and articles, published at his own institution, in order to utilize them as exchanges for other special matter of similar kind, otherwise unattainable. He is himself a living index of indexes, not so much a bibliophile as a worker, holding books to be not ends but means, or best treated when soonest worn out in the service of those most competent. His pride is not in the order, number, or small loss list, but rather in the

ratio of annual use, or the total number of books per person drawing them. He realizes that the library must be a servant and not a master, and that the ideal is to make everything as accessible and tempting as possible.

Every good university has a well equipped mechanic's shop, where one or more of the most skilled workmen devote their time to making instruments for use in the different lines of research. Thus when subjects are settled on, the professor must determine in each case what new apparatus can be bought and what must be made. If he is clever with his pencil, he can indicate, or if he is experienced he can inform with much detail what quantity or quality of each supply will be needed or best, and give the mechanic valuable hints in construction. Then when all supplies are ready, the instructor must almost live in the laboratory in some as in the library in other topics, at least for the first month or two, working or sitting beside each student in turn, fertile with rule of thumb, knacks, and devices, and ready at settling upon modes of experimentation and protocol record keeping, expecting that each who has not had experience in the manipulation of instruments will be at first helpless as a child. This latter is especially the case if the student's training has been chiefly hitherto on the high plateau of speculation and he now comes down to the lower level of inductive plodding and drudgery with details. In these cases there is generally a period of great unsettlement in the novice's mind about the value of the work so concrete and objective, and old prejudices have to be overlived or eradicated. There is much discouragement from the sense of helplessness and great need of the sustaining hope and courage that can be imparted by a veteran as by contagion. Almost daily elbow co-operation in the laboratory and weekly or semi-weekly personal conference of perhaps an hour are necessary before the new work slowly gathers momentum of its own in the student's soul, when the master can gradually withdraw as fast as independence and competence can be trusted.

The customs of professors in the guidance of research differ as widely as human nature. Some reduce the student almost to the condition of a famulus, who must fetch and carry, hew wood and draw water, at first. I can name books of much scope and value wherein about all the work has been done, not by the professor, who appears to be its author, but by his students with no individual acknowledgments. The themes were far too highly specialized for their own best educational growth and were carried out, not with the full frankness of co-operators in a joint work, but as servants do the master's bidding blindly and with little comprehension, even after it was done, of its meaning or wider relations. Traditions and even

rules in the different European laboratories and different universities vary and are sometimes much detailed. Within recent years a few vigorous German students have prosecuted their professors for appropriation of their own intellectual property and in one or two cases at least, as I think, happily won their cause. Many an instructor feels justified in retaining sometimes for years the work of his student and depriving him of his just right and credit for the same, and bringing forth all the work of his laboratory as if it were his own goods and chattels. This robs the student of one of the chief values of investigation and makes his work so ancillary and merged in that of his instructor that the spur of individual ambition and incentive is lost. I am aware that there is something to be said in justification of this ancient way, but it is a relic of the mediæval servitude of the student to his master and smacks too much of the bullying of lower by upper classes to please the modern taste. Next to the loss of development to the student comes the serious loss to science. More and more the best work of the world is done by young men who can be trusted, inspired and guided only by the way of freedom. To cut off the individual enjoyment of natural and just products of one's labor is as unwise in the economy of intellectual productivity as is servitude for industrial development.

The other extreme is represented by the practice of those who, as I have always done, seek entirely to subordinate self to the interests of the student. I feel that he has a need and has a right to all the best literature, thought or suggestion I can possibly provide him. If I have an unfinished work on my own hands, even though quite well advanced, and a student can be trained to do it, I gladly relinquish all rights and claims, and do not repine or blame him even if he forgets, as is sometimes the case, a line of acknowledgment at the end, which common courtesy usually prompts. To phrase this line is often a severe test of both the mental and moral quality of the student. On the one hand he abhors the feeling of dependence. Gratitude is not the foible of youth who have most of their life been served. If it appears that their work was done too close to a man of repute, they fear, and often justly, that their part in it will be underestimated by the public and their impressario will have the lion's share of the credit which he has been too ready to claim in the past. Men whose work I had well along before I ever saw them, to whom I have given scores of hours and loaned scores of books and utterly emptied my mind and written abstracts for, have mentioned my name at the end with a list of others whom they had found suggestive. If one almost guide the pen their obliviousness is sometimes greatest. This the professor must accept with complacency, consoling himself perhaps that the

more eminent he is the more necessary this becomes if the student would justly guard his own individuality. The good teacher will deem this far more agreeable to himself than the other and far rarer returns of excessive acknowledgment, especially if the latter is made from work he does not approve and would not father.

Often the student begins but cannot finish his work, and this I sometimes do all in his name, as indeed one of my teachers, Professor Ludwig, used to take our crude results, often only tables, and write up the entire work and print it as ours, stating only in a foot-note that it was done in his laboratory. I feel that youth must be served and that the good university professor should be content to be the very dung beneath his roots, if so it be that he only grow and bourgeon. One who does this successfully can say to his pupils in a very pregnant sense: "Ye are my epistles known and read of all men." If he has fit students from year to year he can generally express the best that is in his soul to and through them. If he takes this course, however, he must make up his mind in advance that youthful nature is constitutionally lacking in gratitude, and that in the imponderable possessions of the mind the laws of *meum* and *tuum* are not yet established, and that youth has had so long an experience of being done for and so short a one of doing for self that something as strong though by no means as blamable as the predatory instincts of primitive man still reigns in his domain. But it is a fault mainly of nature and not of intention, and as it heightens the most precious sense of having really done something, leaves the teacher who loves his work and his pupils with a satisfaction that is always triumphant over his disquiet and on a far higher moral plane than it.

Between these two extremes are very many gradations, and it would be a fruitful and new chapter indeed in ethics that should undertake to demarcate and lay down the course of duty and responsibility here. One thing is certain, however, and that is that most novices of research are at first as helpless as babes trying to walk, and unlike these most need rather prolonged tutelage before they can balance themselves and progress. For the teacher, too, all this is a work almost totally different from class room instruction of any and every kind. It demands different moral purposes; it moves in the realm of different psychological laws; involves a far heavier strain; and taxes his vitality, patience and endurance far more.

For the successful completion of this line of endeavor, each department should either conduct or have control of some serial publication. The pedagogy of these also constitutes a new and very complex problem. When the work is complete and handed in, the judge or jury of publication have their

opportunity. It must be concise with sufficient but not too many references; enough but not too many tables and cuts; expressed in clear and good English, and must sometimes be returned over and over for revision and especially for condensation, for prolixity is perhaps here the prevailing fault. By a judicious use of this function, too, the larger overthoughts can often be cultivated. The student is prone to be lost in the details of his work, so that he cannot stand off and see its possibilities in due proportion, much less its larger relation to adjacent topics and to the great centers of perennial human interest. The logical order and arrangement of objects often give him pause. Some who are excellent in manipulation and clever in laboratory devices and apparatus find their interest has culminated when everything works with precision. Others' interest centers in the theme itself. They slight methods and are intent only on catching every suggestion from their experiments that can contribute to further insight into their problem, and having secured this, are careless in presentation. In others the literary faculty is dominant and their best work is done in graphic descriptions of processes and results. Few indeed are they who are strong in all these, and the prefect of publication has thus his own large problems in the higher university pedagogy.

When all this is accomplished, proof is read, journal printed and reprints given out, comes a still further and interesting experience, the complete utilization of which is of great importance. The young man must now make his constituency and establish his list of correspondents and exchanges. He makes a list of those men of eminence in all lands whom he most reveres; of laboratories that are most productive; perhaps of college officials most liable to be of service in forwarding his career; and especially of journals likely to pass judgment upon or give any kind of notice of his endeavor; and lastly of his personal friends or relatives interested in the first work of his hands. Parents to whom dedications are made with almost pathetic propriety as the first lock of the infant's hair in Rome was dedicated to the gods; the appended life or *vita* summarizing the chief educational advantages that have been enjoyed; perhaps a few appended theses, relics of the mediæval disputations, which state positions perhaps in very different fields showing his range of interests and that he is ready to defend against all comers, and the thanks to teachers to whom he owes most; thus in the first printed thesis, the young candidate puts on his modern virile toga, steps forth into the arena and throws down his gauntlet, attains his majority in the great mental republic of intellect and culture, and even though the rest of his life be spent on a lower plane of teaching, he has

felt what real achievement means in the supreme world of thought.

Thus, in fine, if the topic has been well chosen and is congenial, which is almost equivalent to half a year's work; and if all has thus been brought through to a finish, even though it appear later that the work had been done elsewhere or even done better, the precious experience of piloting one's self in unknown seas or exploring unknown lands has nevertheless established interest in the intellectual frontier and its problems; has given a taste of the rapture of intellectual procreation, and thus invested the world with a charm which otherwise would not have been experienced, which will forever beckon and allure to the brighter world of high endeavor and make the duller world of prosaic commonplace seem stale and unsatisfactory in a high platonic sense.

When the student first aspires to add to the sum of human knowledge, several things are necessary. First, he must enlarge to the uttermost, in the direction intended, his own objective experience. This he may do in some departments by multiplying his data of facts by laboratory experiments and collecting a large protocol of material to be counted, weighed, photographed, measured, tabulated, utilized for curves, etc. Here all the conditions can and must be perfectly controlled in order that by elimination the true cause can be shown with no ambiguity. But we already here see the infirmity of human nature in the strong tendency to simply accumulate like the ant. The novice must constantly fight himself lest he fall into the habit of recording results; multiplying slides or tests in a mechanical way or like a day laborer, instead of scrutinizing every item with the most intense mentality to catch its secret and see its drift as it comes, and to modify conditions according to its every indication. To stop with the mere protocol or with counted results is a crass empiricism, which unhappily is sometimes encouraged even by instructors, and is especially abnormal just at an age when the best things in life are ideal constructions. The student often pleads, and may very easily fall into the affectation of thinking that it is a virtue not to go beyond his results; that he is a positivist and must not speculate; that scientific prudence and modesty forbid him to think beyond what his method or apparatus give him, but this is often one of the many masks of laziness and inertia which shelters itself under the guise of scientific reserve. The fact is that while there is an inestimable disciplinary power in the severe regimen of careful experimentation, whereby every logical precept is almost unconsciously instilled, there is also a danger that the wings of the soul will be clipped, because intuition and divining power are now at their very best and are no less in need of

exercise than are plodding and cautious ways. Nothing of this kind can ever be more than an unsatisfactory torso unless it is supplemented by high and hard thinking, and unless all the philosophy at the youth's command is diligently brought to bear. A little of the prejudice against speculation, which is merely looking about and looking into, must be uprooted, and the ideal Ph. D. thesis that fits the nature and needs of youth rather than the demands of science would always have two registers, one for discipline and the other for the highest and best expression of the way in which individuality reacts upon the work in hand. I have often encouraged young experimenters in psychology, whose themes or ideals were too severely inductive, to add a few paragraphs or an appendix to their thesis in which to state ideal suggestions for future workers; ulterior problems that had arisen in their own minds; allusions or implications in the whole humanistic sphere; or the bearings of their work upon the highest philosophical themes of evolution, or even religion, in order that they might vent, and the reader see, the underlying motive-power of interest that had animated their labor.

This is the age when in matters of the soul the very guesses of elite youth are often more precious than the tripply distilled products of the laboratory. Not to utilize its power of divining is for youth to renounce its heritage. To be intimidated by the severe logic of science is for the good servant to mutiny and subdue his master. To falter because a broader basis of fact is desirable, or with the fool's hope of more leisure or incentive later, or that greater maturity will bring insight with increasing years is not only a mortal sin against the scientific imagination, but it sterilizes the buds of originality and executiveness. Of the two things that rouse my hottest and most righteous indignation, one is for a young investigator in a new and rich field and with whom I have often worked, to hand me at the end of the year a paper of dry pragmatic details from which every generalization, suggestion, list of probabilities, and everything that could betray the hopes and motives that animated all his drudgery is absent and which suggests only the processes and results of a very complex automatic machine. Whether old or young in the field, and whatever may be the case in other sciences this is not psychology but senility and degeneration. These mechanicians have probably their place in the economy of research, but they are only the ultra formulists, and in all the scores of psychological dissertations of this type, not one represents any marked progress. It is this spirit, too dominant in our academic chairs, that has made psychology take (in so many ways) a position ancillary to physical science, physiology, physics, chemistry and morphology, when it should

now stand squarely upon its own feet and work by methods indigenous to its own field. But this is another matter.

The literature of laboratory psychology abounds in studies based on simple enumeration, and that of child study is no better. In the one records or measurements, and in the other returns are made into tables or curves, which seem to be regarded as something holy and fetichistic. All this matter may be and often is extremely suggestive and valuable, but much of it consists of only the mud sills of possible superstructures, which are abandoned. The instinct of excavating and laying careful foundations and then deserting the building at any stage of incompleteness for some one else to finish, or in the hope that the material will be bodily taken and used in some larger edifice, is a psychosis peculiar to induction. The counters, photographers, and tabulators, like the reporters of many isolated medical cases that abound in the periodical literature of that profession, seem to labor in the hope of a coming redeemer, who will gloriously fulfill and supplement their work, and by whom all its defects will be clothed upon. Indeed Bacon, the great father of empiricism, in his *Silva Silvarum* was very fond of this sacramentalization of the formic *Sammeltrieb*. These scrappists confess their imperfection, but patiently await the great systematizer who, when he comes, will cement their humble tiles into a great mosaic temple, to the glory of which it will modestly contribute. They forget that the smaller the fragment, the sooner it grows obsolete and decays. They are recreant to the high duty and vocation of the true savant; to try and know everything possible on the subject he has chosen and then to think with his strenuous uttermost tiptoe reach until the larger relations in which everything lives and has its being begin to be apparent.

In their study of telegraphy, Bryan and Harter showed that the learner may reach a kind of saturation point on a level below that required of operatives and above which no amount of regular humdrum practice can raise them, but that in such hide bound cases a long intense cram with extra hours and exceptional conative energy breaks the charm and brings them to a sudden and sometimes great increment of maximal speed, so that their entire efficiency is permanently increased. This is the analogue of what ought to occur near the last stage of every attempted investigation on the part of a student. He must throw himself with all the momentum of which his mind, heart, and will are capable upon the subject with no reserves, but with utter abandon, with the fever of second breath, and he will at once begin a new and higher intellectual experience, and will often thus mark an epoch in his intellectual development. It is in this kind of forge and heat that most of the

great discoveries have been wrought out, and those, whose constitutional inertia or whose psycho-physical organism is such that they cannot scud for a time with all sails set and every cord tense without danger, must resign themselves to the career, it may be, of men who are good, but they never can attain that of men of the best quality.

The same is true where themes or theses require wide reading. Here too, a larger human environment and a wider experience is sought. It is a great power to be able to read persistently, for this means taking in others' thoughts unchanged, appropriating the wisdom secreted from other lives and works, and although it is less completely assimilated than what we learn from our own lives it is really life by proxy. The man who truly reads does not have to learn everything for himself, but can profit to the full by the advantage of what others have learned, and can live in other ages, departments, and racial consciousnesses. To read is to gather up thoughts, impulses, and resolves, and to both feed and fire the soul thereby. Interest and curiosity, which are the same thing as philosophy or the life of wisdom, constitute the impulse. This is to read well and wisely and with an exquisite mental olfaction that always finds its way, by some spiritual sense that may seem almost indescribable to those who lack it, to precisely what is necessary. But reading too, may be a mere accumulation or may only etch or veneer the soul with learned citations and pedantries, which in days of superficial scholarship have been the ear marks of learning. Complete reading is digestion and assimilation. The processes of higher apprehension are chiefly taxed, and the objects apprehended are speedily made over into the power that apprehends.

Here again quality tells, and groups of men are differentiated—the masters of knowledge from its servants, those who truly know from those whose minds are mere memory pouches. The masses gather at the feet of the mount; some ascend a little way, but only the few elite can scale the summit above the clouds and bring down the divine tables of the law for those below. As in physiology so in education, we have every type of mental dyspepsia. Some omnivorous maws digest imperfectly and on a very low plane, while mental eupeptics who assimilate on the very highest plane, who distill true culture from the bins of knowledge, a culture that refines and sublimates the soul and the very body itself, so that its effects are transmitted by heredity:—these are they who inherit and in whom are fulfilled all the promises in the field of learning. Such minds scorn the luxury of merely knowing by imbibition; they want no alien thoughts; they have a most sanitive sense of eschewing every study which merely blazes new paths

which are not to be opened up and made into finished highways over which the daily traffic of thoughts, easiest and quickest thought, and of deeds done by second nature as surely and effectively as those done by instinct, is to go. If they do not realize, they at least exemplify that there is a true aristocracy of mind above all the peddling knowledge of the schools, that examinations can never give nor test, and which may exist with or even without them. Diplomas, inscription-books, full sets of notes, academic degrees, etc., may well designate only a knowledge that is perhaps superficial and even vulgar, and may be obtained by the upstart *nouveaux riches* who are not used to it; who are made self conscious, conceited, and unpractical; and who perhaps have given in order to get it the very best endowment of man, naïve and intuitive wisdom and the sound, infallible common sense, which is the muse of American manhood and womanhood.

The psychic wreckage of education illustrates the dangers and disasters wrought by great ideas and facts in little minds, and there are many students at all stages, in my humble opinion, in every modern community who would be better morally, healthier in body, and more wise in all the higher meanings of sapience, if their souls had not been made rily at the bottom or frothy at the top by over education. Blasphemous, though it may seem to the stump orator and the hack writer in the pedagogic guild, I maintain that there are many children in every community who would lead happier lives, who would be better in health, more useful citizens, had they never been to school at all; that many others are injured far more than they are benefited in all these respects by the high school; and I even risk the awful charge of heresy, if not anathema, by maintaining that there are boys who ought never to go to college, and that there are bachelors who should never enter the professions or the university, both for their own good and for that of these institutions.

One of the great currents of contemporary philosophical teaching aims first to clear the mind of all the crude and inadequate religious conceptions of childhood, and then to lay deeper foundations on the basis of a critical examination of self, of the external world, or of the fundamental principles of knowledge. Its goal is generally attained when the adolescent realizes that his entire world is only himself projected, and from the postulate of reality now most frequently construed as activity or will, a new heaven and earth arise out of chaos. This involution of consciousness and re-evolution of the objective world gives keen pleasure to the faculties at the stage when young men are constitutionally prone to vast, vague, and

voluminous states of consciousness and love hazy, dreamy views. It flatters as nothing else ever has done the individual ego, which now feels itself at the very center of gravity of the universe, but does not realize that it is dangerously balanced equi-distant from all point of contact with life. The persistent echoes in the soul of the myriad ages of adolescent initiation in unnumbered past generations, give to youth, who have been subjected to this discipline, a sense of esoteric superiority and of finality which causes a peculiar psychosis of arrest. They have seen the ultima Thule, have been through heaven and hell, and found some measure of satisfaction in having attained ultimate and superior insight.

But alas for many this is a slight inoculation against the deeper love of knowledge and should not be called philosophy, because the love of wisdom which this name signifies has been assuaged by possession. They no longer woo but have married the muse of wisdom and have settled to an humdrum but barren and self-confluent life about her own hearthstone. Many drift into a refined indifference to all passionate interests, and those who work long lay down laws to the special sciences by virtue of their assumed superior acquaintance with cause, time, space, the nature of experience, and truth in a speculative arm-chair way, interesting to others who are touched with the same type of paranoia, but absolutely without influence and generally voted rather ridiculous by the hard working men of science, who in the laboratory and the field struggle fist to fist with the hard facts of the world.

The root trouble with these cases I have come to believe is mental inertia. This is the most refined modern form of the self indulgent laziness, which prefers to speculate and will not work in the rigorous sense of that word. These are they who Plato said should be whipped if they persisted in philosophizing in the top lofty way which paralyzed action. No one felt more strongly the necessity of a rigorous course of philosophic thought, but no one so clearly saw how perilous it could become at this age so prone to mental inebriation. For all it is like migration to a new land, where the best grow stronger and the weakest are lost, and where the average man is doomed to forever remain as he is, because he is made complacent with his mediocrity. I maintain, therefore, that this course has its place, but that nothing in the whole curriculum of learning so needs the most careful individual adjustments and should be administered in doses all the way from large to nothing, with a tendency always toward less than toward more.

I have had a long experience in trying to infect able young men well trained in this direction with a love of some detailed, objective and experimental investigation, and believe that the

conversion of a hardened sinner is not more difficult than this. Theme after theme, most carefully chosen with long considered, individual adjustments, has been temptingly suggested; often the preliminary work involving weeks and even months of hard labor has been given, and there is nothing to do but finish it, and often the attempt has been honestly and sincerely made, but generally in a short time the interest languishes, and this is generally shown by drifting to some other theme, thought from the student's philosophical standpoint to be more solvable. Often utterly unpractical and always far too vast subjects are chosen by such men. Where they can be narrowed to some extent, they often regard as an incident in their work the mastery of departments within which many men have wrought a life time and always felt too great for them. Near the end of the year with the spring unrest, the fatuity of their quest is sometimes realized and there is deliberate and intended miscarriage. Rather more often the results of a rather voluminous reading are skewered on a slender thread of ideas in the easy form of an essay, sometimes felt to be a larger view offered to the drudging "scientist" like the golden crown over Bunyan's man with the muck rake, which he, poor devil, will not look up to see. Sometimes the end is a plan for work in the future, a book to be evolved when one is settled in some professorial chair, or a course of lectures to be given later and an inane programme, used to keep up the delusion of omniscience.

In other cases a speculator has the background mental perspective dimly to feel a gleam of dissatisfaction with his precious investments of time and labor in the past, or else has the intuitive power to catch some quick insight into the importance of some theme properly commensurate with his powers; and if he has health and perseverance to work this out thoroughly and completely to throw himself with fervent heat into all its details and to add or even to think that he adds something new and valuable, he then becomes a changed man. His strength is doubled. It is not Antæus touching the ground, but two firm foundations—one on the concrete and empirical, the other on the theoretic base from which a high arch of promise can be reared. A man well balanced between these two tendencies is strong by nature and now more than doubly strong by training. Such men are rare as they are precious; and both the theoretic type and the empiricist, who ties himself closely down to the exact facts, are abnormalities, and especially are not fitted when in academic chairs to exert a sound and inspiring influence upon young men.

My other maddening provocative of ethical and scientific indignation then is the naïve assumption of lofty wisdom and deeper insight due, when psychologically explained, to the

very same diminution of power or of the feeling of necessity of grappling with facts and details in the world of sense, which causes the delusions of greatness in the early stages of general paresis. It is this that keeps epistemologists from "losing face," as the Chinese say, in entering into all fields and discussing the ultimate principles of all sciences. They point out to the chemist the degree of credence that he may be allowed to attach to the doctrine of atoms, and show him the danger of pushing his hypothesis beyond this, that, or the other limit. They inform the physicist what the doctrine of force and the dynamic view of the universe or the theory of ether really means. They announce to the biologist the tenable and untenable forms of the evolutionary theory which he may be allowed to hold. The theologian is told what God truly is and how he should be conceived and how proven. They patrol the field of neurology, proclaiming to the toilers that however far they push their resources, they can never by any possibility contribute to our knowledge of what mind is, because it is incommensurate with matter by this, that, and the other token. The mathematician is tutored as to the ultimate nature of space, time, motion, axioms, etc. The laboratory psychologist is taught the logical principles by which he must proceed, and shown the adamantine limits that fate has fixed to his methods. The genetic student of mind is reproached for his interest in concrete items, and his cause is non-suited on high *a priori* grounds. Formerly, these introverts slaughtered Herbert Spencer and showed Huxley what a poor Richard he was, and I have about two shelves in my library devoted to the philosophical annihilators of evolution. Now they make forays into the field of education and find everything sadly in need of their enlightening offices. Perhaps their central province is now assumed to be the retelling of the story of Locke, Berkeley, Hume, and Kant, with endless variations, with a salvation motive of rescuing those infected with the awful epistemological spook of doubt. Formerly, heroes undertook romantic Don Quixote excursions to rescue imprisoned maidens from Don John towers or subterranean keeps. These romanticizers with ideas now sally forth to rescue academic youth from the clutches of the dragon of scepticism, and their story is of his awful ravages; of following his traces to his inmost lair; finding his one vulnerable point and planting deep in his heart the lance of triumphant vindication that "being doth be." Like the old sun god heroes they go down to the lower world of Hades, where spirits are imprisoned, and come forth out of the mouth of hell, followed by troops of jail delivered souls saved by the newest and shortest of all ways out of agnosticism.

These redeemers do not see that at its very worst, the doubt

they fight is a merely transient occasional phenomenon due to a narrow and now obsolescent orthodoxy, which has its ideal field only where the religious atmosphere of youth has been close and stifling; that the many isms and philosophical heresies which they impugn are for the most part not represented in actual and least of all in modern life, but are the poses of theorists in the past, partly temperamental and partly literary, and to be treated only as the critic treats the productions and schools in the field of art and letters; that if they have saved souls, it is only souls whom they had first placed in jeopardy. The "reality," which is the Holy Grail of all their quest, is a far less real and a practically less important thing than the quidity of scholasticism, because that was the basis of the mediæval church, when it was the basis of every social and political institution. But their ratiocination is essentially that of the sophists of ancient Greece, although the modern sophist finds himself in an intellectual world far fuller, so that his work is more negative and far less often constructive.

Students of this type generally have more power to think than those who are extreme empirics and experimenters, so that if they can be taught to work by this latter method they are more likely to do service. They are also, perhaps, on the whole more easily brought to thus supplement their one-sidedness, because the limitations of the empirics are more often due to native lack of ability.

Besides the incorrigible epistemics, however, there are those emerging from the shadow who are weary of *a priori* constructions, hunger for a more concrete field, and drift to various things. Sociology, especially in its present, unsettled, and suggestive stage, is attractive to their vast and voluminous states of mind, where they soon crassify either to vast and harmless speculation or to extreme and special theories, where they find gratification for the passion to express their unique individuality by working their way to some very viewy view all their own. Some of them find the best vent for their instinct in re-expounding Dante, Faust, Greek tragedy, art; or reveal to the Browningites the awful mystery of what their master really meant; or peddle the views of Nietzsche and Ibsen, or explain what has hitherto been inexplicable about music; or lecture on vast ethical, æsthetic, and social themes with fervid and lushy platitudes, which they wield as if they were Excalibur blades slicing monstrous foes invisible to common mortals.¹

I believe that no one has much knowledge of the inner work-

¹ See the author's article, entitled "College Philosophy," in The Forum for June, 1900.

ings of his own soul until he has served an apprenticeship in the psycho-physical laboratory in the study, under exact conditions and with apparatus, of some problem involving sensation and some of its immediate reactions—attention, memory, feeling, choice, or association. This lays bare the geology of the soul, in a way compared to which all the dissections of consciousness by unaided introspection is only surface or cadastral mapping. The new method is to the old in some fields almost as the microscope, which has created so many new sciences of what no one ever saw before, is to the natural eye.

The main point is that every mature special student in this field must not stagnate or harden in mind too early. Save in the rarest cases of a special coincidence between talent and academic environment, it is a bad sign for a young man to remain in the philosophical attitude or position of one school or of his last instructors. If, under these influences, he gravitates to empiricism, it is arrest, and it is real progress for him to experience a gradual change to interests involving more speculation; while if the latter has predominated, a change in the opposite direction is no less truly progress. Hence to pry young men off the rocks and shoals, where their environment has stranded them so that they may float off on deeper currents into the great open sea of truth, is often the truest service. Thus the real pedagogical shepherd of souls needs to be almost a materialist to the superattenuated spiritualist, an epistemologist to the unphilosophical laboratorian and abject worshipper of methods too exact for the nature of the subject. He must complement and supplement past influences and present tendencies, perhaps on the whole more often than he must re-enforce them.

There are thus two kinds of self knowledge—one more introspective and deductive, and the other more objective. The one starts with ideas, categories, substance, cause, matter, force, virtue, etc., as ultimates (as theology assumed the Bible to be the final *verba ipsissima* of God), and explicates experience, persistently assuming certain primal conceptions as major premises which can never be analyzed. The other prompts the modern psychologist to know himself in a more inductive way. He would like to trace his pedigree through all his multiplying ancestors and know all the kings and murderers we are told we all have among our forebears. He would go back of the human stage and ferret out the roots of his descent as far back toward the primal cosmic gas as possible. He seeks to know all he can of the early character of his parents, their courtship, his own prenatal life; wishes that his infancy had been studied as was the child of Preyer or Miss Shinn's niece; would have jotted down his own autobiography recalling the

many facts, clear to the memory at 14, but forgotten at 40; would have been the subject of every laboratory test practicable, and know his rating on the scale of color, fatigue, concentration, etc., as athletes prize their record. He would have been studied without undue intrusion into his personality, as Casper Hauser was, or subjected to as wide a circle of anthropometric tests as Zola has been. He would know the fears and hopes of his parents when he was young, and their grounds; would have confided to paper the ideals of every stage of life for maturer study later; would face frankly all possible records of ill health or moral perversity, and not ignore the sad might-have-been's at the critical points of his career; and then, perhaps, after having attained the maximal self expression continued into a ripe old age, ever reflecting from a higher standpoint the achievements of the next lower perhaps even bequeath his brain to his expert friends to aid in pointing the moral or drawing any lesson from his life, regretting only that he could not himself somehow survive to be present and share the interest in his own autopsy. Something like this would perhaps be the modern form of the noetic passion, if in our day it took the next step in the way a new Aristotle would now do. One need not insist upon the platitude that the completest record of the meanest life that realizes this ideal would be the most precious thing in the world of science, or repeat the old and one-sided saw that there is really more wisdom in a cell of Plato's brain than in all his works; nor need one be overwhelmed with the pessimistic suggestions that this kind of self acquaintance, if complete, would make so patent how infinitely larger, better, wiser, he might have been, than he is. Such dreamery may at least serve to show that the ideals of objective are no less comprehensive than those of subjective self knowledge.

The modern psychologist is also to some extent a naturalist. Every unique personality, manifestation of genius, moral and mental inferiority, children, savages and primitive people if he comes in contact with them, and in a special sense animals, including birds, insects, reptiles, not only wild but domesticated species, have a somewhat different interest to him than to others; for to his mind, all their ways and life, history shed light on the great problem of the psyche in the world, of which his own soul is one manifestation higher in many but lower in other respects. Perhaps psychology raises the interest in life which all feel to a higher potency and intensifies the desire to see, know, touch it at every point, to enlarge our experience as far as possible toward becoming commensurate with that of the race. It tends to regulate grief, love, fear, anger, by making them objects of intellectual interest even at their

acme in our own person. It makes the adept at home with and lord of himself, although none so passionately long to have lived in all times, seen all events and to have exhausted every possibility of human and even sub-human experience. Indeed, so world wide is its domain that to take psychology as one's department often seems to me to involve in itself almost a delusion of greatness. Already different workers in the field have drifted as was inevitable so far apart, and all upon permissible and legitimate ways, that we are hardly in hailing distance of each other, and those strong in some departments are thus by no means more competent to pass critical judgment upon the work in other departments than mathematicians are to evaluate the work of chemists.

Thus, in fine, we conceive the function of the psychologist today, who is smitten with a pedagogical passion of helping young men to the fullest development of their power in his field, as being largely a twofold office. He must ensure to those prone to dwell in the material field of sense and empiricism another citizenship in the realm of the ideal, and, to those who by nature and training are in danger of a similar provincialism in the field of deductive or ideal methods, some mastery in the field of objective and inductive or genetic mind study. Such a teacher must be idealistic in his strivings with the one, and perhaps materialistic in his influence upon the other. He must himself be well poised in sympathy between the two almost as with a dual personality, or better yet he must strive to dwell in the higher region where this great practical antithesis is sublated into unity.

Both at Johns Hopkins and at Clark, I have repeatedly had periods or seasons of personally conducting excursions of my students to various institutions, where I have usually gone beforehand to prepare demonstrations. At blind asylums we have asked teachers to exemplify their methods or have spent a day questioning pupils and perhaps testing their senses, observing them at play and work, and individual students have been directed beforehand to observe in special directions. The same has been done in the institutions for the deaf, for the feeble-minded and idiotic. We have visited reform schools, and in some cases have had access to prisons, although profitable work here is far more difficult. For years I conducted a Sunday class of about thirty men in the Baltimore city prison, where I was able to secure the confidence and good-will of the inmates, some of whom were not only ready but glad to talk of their views of life, of society, penalty, and some rare cases have been ready to speak freely about their crimes. We have made excursions to Boston, Philadelphia and Washington for this

purpose, and not infrequently these visits have resulted in opening these institutions for more special studies later by individual students. In insane asylums I always carefully selected and grouped patients for my psychological clinic in advance, and have held it in the less disturbed wards or in the chapel, selecting one or more sessions each for epilepsy, paranoia, paresis, hallucinations, dementia, mania, melancholia, etc., only after I had given a few lectures upon each of these topics, some knowledge of which I deem indispensable for every student of the mind. This psychological field work has given to pedagogues, philosophers and theologians, some slight glimpse into large fields, most of which, perhaps, they will never know more of. But although the effect be not tangible in the way of productivity, it gives a wholesome and concrete direction to thought, and teaches respect for special and professional knowledge which the metaphysician is so liable to never learn. The greatest good for the greatest number has probably been secured by visits to the associated charities, the orphanages, founding homes, and poorhouses. I have collected abundant autobiographies with the aid of attendants in some of these institutions, particularly the poorhouses, that have tended to give minds of both the speculative and the narrow cast in the fields of sociology, philanthropy and education a wider or more practical drift.

—I have always lectured on the history of philosophy, generally turning over my barrel every three years. This was my first love, and I have always insisted that it should be at least a minor for every Ph. D. in my department. This I have done because I have felt it the most enlarging and necessary point of view that I was able to insist upon for psychologists, who might thus be safe-guarded from the narrowness of the laboratory. In the early days I worked according to the Hegelian assumption that the systems developed one from the other in such a way that the chronological and the logical order had some degree of coincidence, but with every repetition I have felt more and more dissatisfaction with the current manuals and histories of philosophy and an increased disposition to treat the whole subject as literature rather than as dogma. Most of the ephemic wisacres, who have dealt with this subject, have, as I think, conceived it too narrowly and been interested almost solely in the ethical or epistemological aspect of the subject. Most of them perhaps know Kant's critiques best of all, but very few of them have read his other writing on scientific and miscellaneous topics, which make up in bulk the larger half of his work. They all understand Plato's theory of ideas as interpreted by his chief exponents, but very few have read even in Jowett his minor Dialogues or have felt the Republic

to be of equal interest with the more abstruse Theatætus, Parmenides, Pythagoras, etc. They know most of Aristotle's *Organon*, but few have as carefully studied *De Anima*, his *Politics*, *Rhetoric*, *Doctrine of Nature*. Even those who have had a little interest in all the works of the great thinkers have rarely widened their ken to include the contemporary history of science, medicine, literature, or culture generally, as really should be done in order to understand and explain, according to the higher demands which psychology now lays upon the historian of philosophy, each great thinker from his environment.

This, I conceive to be the goal, and it will be attained only when philosophy in the narrower sense in which its histories are now written is broadened into the comparative psychology of philosophers, which considers their lives,—where they led lives of significance,—and their entire *milieu*. In recent times we see already more specialized or generalized treatment (*e. g.*, Teichmüller, Jackson, Höfding, the Blackwood Series, etc.), which suggests a tendency in both these directions, so that the work of Schwegler and Weber and their ilk, although perhaps not passing, is being relegated to a more elementary position and a more one-sided treatment.

When my scientific colleagues suggest that the history of philosophy is no more important for a true psychology to-day than is the history of chemistry, mathematics, physics, etc., for these sciences, I reply first, that I would have the histories of the latter always taught in every university department, and second, that while the history of philosophy is not philosophy, as Hegel claimed, it should play an incalculably more important role in the training of the young adept than the history of the sciences in training of those as specialties. In a word, the history of philosophy has too often been taught in a narrow way, which must now be transcended. Just as history, which used to treat only of kings, dynasties, and battles, now studies every human institution and the lives of the people as far more important; as literature used to be perused only as a magazine for quotations and learned allusions, but is now treated as a development and expression of a period, so philosophical history, if it would not lag hopelessly behind, must profit by these examples.

In fact, I am almost tempted to go further and to query whether the ideal of the scholar as the man who merely knows a large body of any kind of knowledge is a normal type of man; whether he is worthy to be held up as a model to the young; or whether he is rather to be conceived as a miser or a mere antiquary, unless he uses the material with which his mind is stored as apparatus for additions to the sum of human knowledge, unless he puts his intellectual possessions to work. May

we not go further and ask whether useless knowledge, as we now understand the psychology of knowing, is not an encumbrance from which the mind should be freed as far as possible, and of which it should be cleared for action; and whether mere bookishness is not always pathological. In university faculties, the observation has been very often made, that graduates, who come from colleges with the highest standards of attainment as tested by examinations, are less disposed to attempt original work and are less successful when they do so. They have been trained in receptive processes, and it is a serious question whether examinations do not tend directly to prevent knowledge from striking deep root and to delay it in the "memory vestibule." If this be true, they are a distinct hindrance to the assimilation of mental pabulum. Experts are agreed that in the development of the power to draw, children reach a stage where too great familiarity with pictures has a distinctly depressive influence.¹ They lose the power to create or even to copy at a certain stage, because they feel the disparity between the best that has been done and what they can do. The same may be true of learning and originality repressed by too much knowledge. The vaster the appreciation of the body of facts and sciences, the greater the difficulty in focussing upon one thing, and the more disparingly high are the standards set. True learning should stimulate and not paralyze the active powers. A book should not be a drug, but should be an explanation of experience. Other people's ideas should not muddle the brain but should bring access of power, if all the stages of appropriation are completed. To send graduates into the world with a sense of oppression in view of the universe of knowledge is as bad, perhaps, on the one hand as it is on the other to dower them with the fatal sense of finality and attainment. The characterization of a scholar as "widely read" I hold to be a compliment of doubtful value. The all important thing is to have brought him down from the highland of childhood into full view of the great sea of nescience with some motive to explore it or to build out the mainland ever so little into it. This is more important than to know the just configuration of all the continents of science that have emerged from the primeval sea.

Some of the devices I have described have been adopted more or less tentatively and incompletely, and yet await a full realization, but all have been earnestly tried and most, I believe, have a future. The very best of them, however, I am convinced are almost impossible with large numbers. It is from this standpoint that we can best see the advantages of the

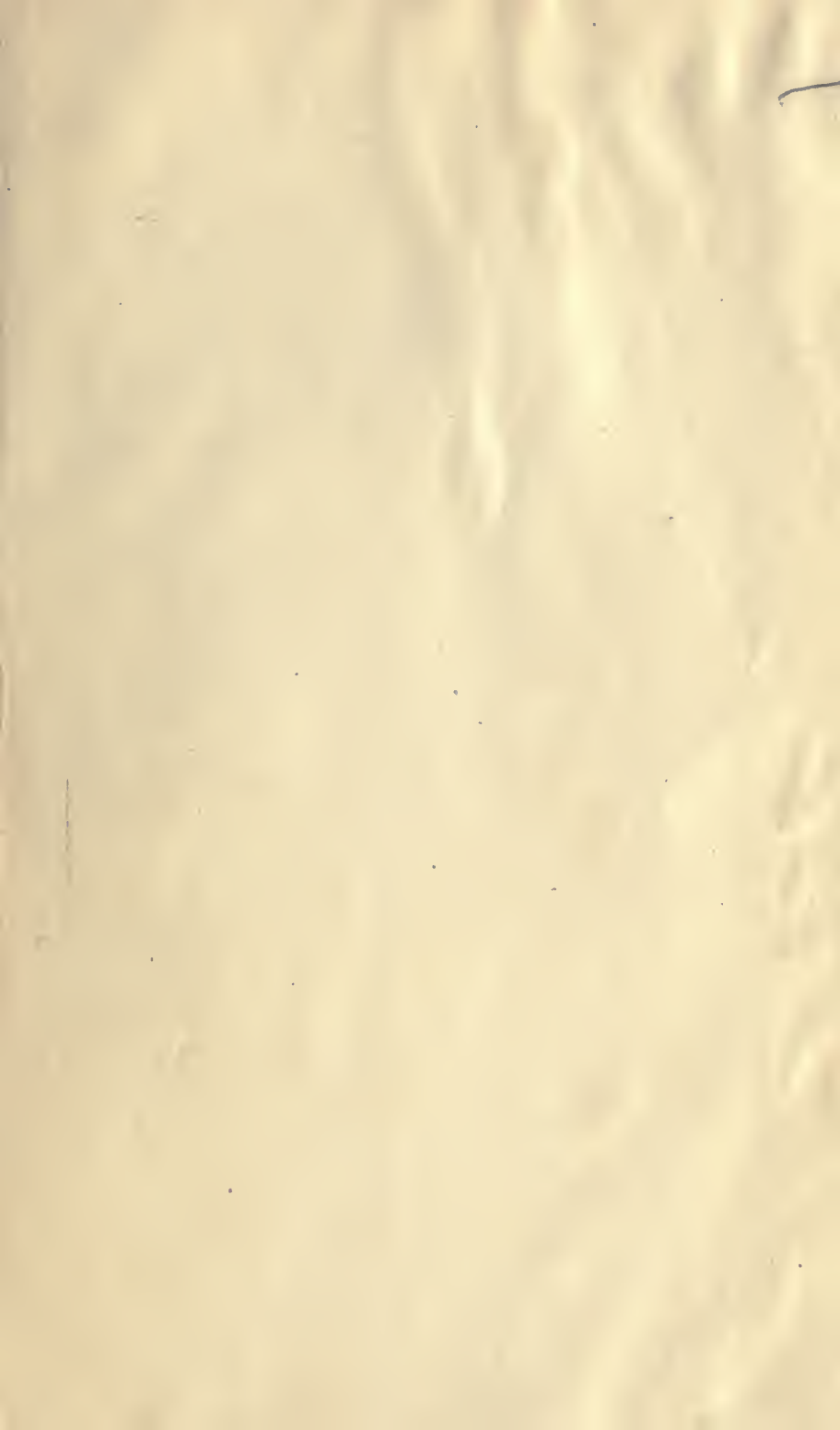
¹ Lukens: Die Entwicklungsstufen beim Zeichnen. Die Kinderfehler, Vol. II, p. 166.

small institution and small classes for advanced work, which, if successful in any high degree, must always be personal and permit free and almost daily intercourse between teacher and taught outside the class room. Students must be almost as much at home in the library of their professor as in the department alcoves of the university, and he must set apart a few hours each day for personal work where it is most needed. Not only the student, but I believe the professor, loses much that is best where most of their contact is in the class room.

To one familiar for years with the topics which consume most of the time of faculty meetings, with the discussions in associations of colleges and high schools, or even in the conferences of colleges, many of the problems here touched upon are new and full of promise. I have tabulated all the topics discussed for a series of years in one of the latter organizations and find the vast preponderance of time has been spent in discussing questions of preparation, discipline, or points involving competition between rival institutions. Useful and important as these themes are, they should have no place in the association of real universities. Science and learning must be independent of preferences for or interests in localities or institutions. The dominant questions should always be how best to promote the interests of the best men; how to advance research; how not to interfere with the free work of natural selection by the prizes of fellowships, etc., so that each student shall find his way to the academic environment most stimulating and salutary for him; and if these notes contribute in the faintest degree to this higher field, where the mere administrator has little place and the investigator should always come to the front, they will have fulfilled their office. The problem here is nothing less than how to advance the kingdom of man; bring in a higher level of expert training; prepare the way for the superman that evolution intimates we are to await; enlarge academic freedom by the same facility of student migrations between institutions as formerly between professors in the same institution by the elective system; secure the same stimulus among the most eminent professors in the few highest institutions as was felt when college options gravitated away from the dull professors, so that the graduate who intends to go farther will feel that there is an organic unity between all the best institutions of the land and that his true *Alma Mater* is henceforth where he can do the best and most for himself; that greater care be exercised than is now done in some institutions in the selection of young men to be launched upon professorial careers, and that the doctorate of philosophy be made the most ideal intellectual honor that the older can confer upon the younger generation of scholars.

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